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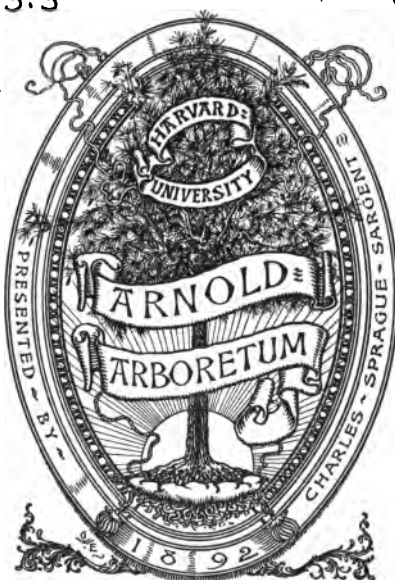
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IN

FOREIGN MARKETS.

Vol. XI.

U.S.-

ISSUED FROM THE BUREAU OF STATISTICS, DEPARTMENT OF STATE.



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1894.

VALUES OF FOREIGN COINS.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

These estimates "are to be taken (by customs officers) in computing the value of all foreign merchandise made out in any of said currencies, imported into the United States."

The following statements, running from January 1, 1874, to April 1, 1894, have been prepared to assist in computing the proper values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. When it is taken into account that the ruble of Russia, for instance, has fluctuated from 77.17 cents in 1874 to 37.2 cents in April, 1894, such computations are wholly misleading. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1890, and in the quarterly valuations thereafter.

To meet typographical requirements, the quotations for the years 1876, 1877, 1879, 1881, and 1882 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—Countries with fixed currencies.

Countries.	Standard.	Monetary unit.	Value in terms of United States gold.	Coins.
Argentine Republic*...	Gold and silver...	Peso	\$0.96, 5	Gold—Argentine (\$4.82, 4) and $\frac{1}{2}$ Argentine; silver—peso and divisions.
Austria-Hungary†.....	Gold	Crown.....	.20, 3	Gold—20 crowns (\$4.05, 2) and 10 crowns.
Belgium.....	Gold and silver...	Franc.....	.19, 3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil	Gold	Milreis .....	.54, 6	Gold—5, 10, and 20 milreis; silver— $\frac{1}{2}$, 1, and 2 milreis.
Chile‡.....	Gold and silver...	Peso .....	.91, 2	Gold—escudo (\$1.82, 4), doubloon (\$4.56, 1), and condor (\$9.12, 8); silver—peso and divisions.
Cuba.....	.....do.....	.....do.....	.92, 6	Gold—doubloon (\$5.01, 7); silver—peso.
Denmark.....	Gold	Crown.....	.26, 8	Gold—10 and 20 crowns.
Egypt.....	.....do.....	Pound (100 piasters).	4.94, 3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland.....	.....do.....	Mark.....	.19, 3	Gold—10 and 20 marks (\$1.93 and \$3.85, 9).
France.....	Gold and silver...	Franc.....	.19, 3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany.....	Gold	Mark.....	.23, 8	Gold—5, 10, and 20 marks.
Great Britain.....	.....do.....	Pound sterling...	4.86, 6 $\frac{1}{2}$	Gold—sovereign (pound sterling) and half sovereign.
Greece.....	Gold and silver...	Drachma.....	.19, 3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti.....	.....do.....	Gourde.....	.96, 5	Silver—gourde.
Italy.....	.....do.....	Lira.....	.19, 3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Liberia.....	Gold	Dollar.....	1.00	
Netherlands‡.....	Gold and silver...	Florin.....	.40, 2	Gold—10 florins; silver— $\frac{1}{2}$, 1, and 2 $\frac{1}{2}$ florins.
Portugal.....	Gold	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Spain.....	Gold and silver...	Peseta.....	.19, 3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway...	Gold	Crown.....	.26, 8	Gold—10 and 20 crowns.
Switzerland.....	Gold and silver...	Franc.....	.19, 3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey.....	Gold	Piaster.....	.04, 4	Gold—25, 50, 100, 200, and 500 piasters.
Venezuela.....	Gold and silver...	Bolivar.....	.19, 3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

* In 1874 and 1875 the gold standard prevailed in the Argentine Republic. Its currency does not appear in the statements again until 1883, when the double standard prevailed, and the peso attained a fixed value of 96.5 cents.

† On reference to the table of "fluctuating currencies," it will be seen that Austria had the silver standard up to and including the quarter ending July 1, 1892. The next quarter (October 1) inaugurated the gold standard (see note under table of "fluctuating currencies").

‡ The gold standard prevailed in Chile until January 1, 1890. The value of the peso has been the same under both standards.

§ The Netherlands florin, as will be seen in the "fluctuating" table, became fixed in value (40.2 cents) in 1880.

VALUES OF FOREIGN COINS.

V

B.—Countries with fluctuating currencies, 1874-²90.

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1874.	1875.	1876.	1880.	1883.	1884.
Austria-Hungary*	Silver.....	Florin.....	\$0.47,6	\$0.45,3	\$0.45,3	\$0.41,3	\$0.40,1	\$0.39,8
Bolivia.....	do.....	Dollar until 1880; boliviano thereafter.	.96,5	.96,5	.96,5	.83,6	.81,2	.80,6
Central America.....	do.....	Peso.....	.96,5	.91,8	.91,8	.83,6		
China.....	Silver.....	Hakwan tael....	1.61	1.61				
Colombia.....	do.....	Peso.....	.96,5	.96,5	.96,5	.83,6	.81,2	.80,6
Ecuador.....	do.....	do.....	.96,5	.91,8	.91,8	.83,6	.81,2	.80,6
Egypt†.....	Gold.....	Pound (100 piasters).			4.97,4	4.97,4	4.90	4.90
India.....	Silver.....	Rupee.....	.45,8	.43,6	.43,6	.39,7	.38,6	.38,3
Japan.....	{ Gold..... Silver..... }	{ Yen..... Yen..... }	{ .99,7 .99,7 }	{ .99,7 .99,7 }	{ .99,7 .99,7 }	{ .99,7 .99,7 }	.87,6	.86,9
Mexico.....	do.....	Dollar.....	1.04,7 ²	.99,8	.99,8	.90,9	.88,2	.87,5
Netherlands ‡.....	Gold and silver..	Florin.....	.40,5	.38,5	.38,5	.40,2		
Peru.....	Silver.....	Sol.....	.92,5	.91,8	.91,8	.83,6	.81,2	.80,6
Russia.....	do.....	Ruble.....	.77,17	.73,4	.73,4	.66,9	.65	.64,5
Tripoli.....	do.....	Mahbub of 20 piasters.	.87,09	.82,9	.82,9	.74,8	.73,3	.72,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1885.	1886.	1887.	1888.	1889.	1890.
Austria-Hungary*	Silver.....	Florin.....	\$0.39,3	\$0.37,1	\$0.35,9	\$0.34,5	\$0.33,6	\$0.42
Bolivia.....	do.....	Dollar until 1880; boliviano thereafter.	.79,5	.75,1	.72,7	.69,9	.68	.85
Central America.....	do.....	Peso.....				.69,9	.68	.85
Colombia.....	do.....	do.....	.79,5	.75,1	.72,7	.69,9	.68	.85
Ecuador.....	do.....	do.....	.79,5	.75,1	.72,7	.69,9	.68	.85
Egypt†.....	Gold.....	Pound (100 piasters).	4.90	4.90	4.94,3	4.94,3	4.94,3	4.93,3
India.....	Silver.....	Rupee.....	.37,8	.35,7	.34,6	.33,2	.32,3	.40,4
Japan.....	{ Gold..... Silver..... }	{ Yen..... Yen..... }	{ .85,8 .86,4 }	{ .81 .81,6 }	{ .99,7 .78,4 }	{ .99,7 .75,3 }	{ .99,7 .73,4 }	{ .99,7 .91,7 }
Mexico.....	do.....	Dollar.....	.86,4	.81,6	.79	.75,9	.73,9	.92,3
Peru.....	Silver.....	Sol.....	.79,5	.75,1	.72,7	.69,9	.68	.85
Russia.....	do.....	Ruble.....	.63,6	.60,1	.58,2	.55,9	.54,4	.68
Tripoli.....	do.....	Mahbub of 20 piasters.	.71,7	.67,7	.65,6	.63	.61,4	.76,7

* The silver standard prevailed in Austria-Hungary up to 1892. The law of August 2 of that year (*see* CONSULAR REPORTS, No. 147, p. 623) established the gold standard.

† The Egyptian pound became fixed in value at \$4.94,3 in 1887.

‡ The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40.2 cents.

C.—Quarterly valuations of fluctuating currencies, 1891-'94.

Countries.	Monetary unit.	1891.				1892.			
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.	Oct. 1.
Austria-Hungary *	{ Gold crown.....								\$0.20,3
	{ Silver florin....	\$0.38,1	\$0.36,3	\$0.36,3	\$0.35,7	\$0.34,1	\$0.32,8	\$0.32	
Bolivia.....	Silver boliviano....	.77,1	.73,5	.73,6	.72,3	.69,1	.66,5	.64,9	.61,6
Central America....	Silver peso.....	.77,1	.73,5	.73,6	.72,3	.69,1	.66,5	.64,9	.61,6
China†.....	{ Shanghai tael.....	1.13,9	1.08,5	1.08,7	1.06,8	1.02,1	.98,2	.95,8	.91
	{ Haikwan tael.....	1.27	1.20,9	1.21	1.18,9	1.13,7	1.09,3	1.06,7	1.01,3
Colombia.....	Silver peso.....	.77,1	.73,5	.73,6	.72,3	.69,1	.66,5	.64,9	.61,6
Ecuador.....	do.....	.77,1	.73,5	.73,6	.72,3	.69,1	.66,5	.64,9	.61,6
India.....	Silver rupee.....	.36,6	.34,9	.35	.34,3	.32,8	.31,6	.30,8	.29,3
Japan‡.....	Silver yen.....	.83,1	.79,2	.79,3	.77,9	.74,5	.71,6	.69,9	.66,4
Mexico.....	Silver dollar.....	.83,7	.80	.80	.78,5	.75	.72,2	.70,4	.66,9
Peru.....	Silver sol.....	.77,1	.73,5	.73,6	.72,3	.69,1	.66,5	.64,9	.61,6
Russia§.....	Silver ruble.....	.61,7	.58,8	.58,8	.57,8	.55,3	.53,1	.51,9	.49,2
Tripoli.....	Silver mabhub.....	.69,5	.66,3	.66,4	.65,2	.62,3	.60	.58,5	.55,5
Venezuela ¶.....	Silver bolivar.....	.15,4	.14,7	.14,7	.14,5	.13,8	.13,3	.13	.12,3

Countries.	Monetary unit.	1893.				1894.	
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.
Bolivia.....	Silver boliviano.....	\$0.61,3	\$0.61	\$0.60,4	\$0.53,1	\$0.51,6	\$0.46,5
Central America.....	Silver peso.....	.61,3	.61	.60,4	.53,1	.51,6	.46,5
China†.....	{ Shanghai tael.....	.90,6	.90,1	.89,2	.78,4	.76,2	.68,6
	{ Haikwan tael.....	1.01	1.00,4	.99,4	.87,4	.84,9	.76,5
Colombia.....	Silver peso.....	.61,3	.61	.60,4	.53,1	.51,6	.46,5
Ecuador.....	do.....	.61,3	.61	.60,4	.53,1	.51,6	.46,5
India.....	Silver rupee.....	.29,2	.29	.28,7	.25,2	.24,5	.22,1
Japan‡.....	Silver yen.....	.66,1	.65,8	.65,1	.57,3	.55,6	.50,1
Mexico.....	Silver dollar.....	.66,6	.66,2	.65,6	.57,7	.56	.50,5
Peru.....	Silver sol.....	.61,3	.61	.60,4	.53,1	.51,6	.46,5
Russia§.....	Silver ruble.....	.49,1	.48,8	.48,3	.42,5	.41,3	.37,2
Tripoli.....	Silver mabhub.....	.55,3	.55	.54,5	.47,9	.46,5	.41,9

* Austria-Hungary had the silver standard up to August, 1892 (see note to "fluctuating" table B).

† China (silver). The Haikwan tael is the customs tael, and the Shanghai tael that used in trade. Consul-General Denny (CONSULAR REPORTS No. 43, p. 516) says: "The value of the tael varies in the different ports of China, and every port has two taels, one being the Government, or Haikwan, tael, in which all duties have to be paid, and the other the market tael, the former exceeding the latter by some 11 per cent."

‡ Gold is the nominal standard in Japan, but silver is practically the standard. The fixed value of the gold yen is 99.7 cents.

§ The gold ruble is valued at 77.2 cents. Silver is the nominal standard, but paper is the actual currency, and its depreciation is measured by the gold standard.

¶ The Venezuelan bolivar became fixed at value (19.3 cents) on January 1, 1892.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalent.
Almude.....	Portugal.....	4.422 gallons.
Ardeb.....	Egypt.....	7.6907 bushels.
Are.....	Metric.....	0.02471 acre.
Arobe.....	Paraguay.....	25 pounds.
Arratel or libra.....	Portugal.....	1.011 pounds.
Arroba (dry).....	Argentine Republic.....	25.3175 pounds.
Do.....	Brazil.....	32.38 pounds.
Do.....	Cuba.....	25.3664 pounds.
Do.....	Portugal.....	32.38 pounds.
Do.....	Spain.....	25.36 pounds.
Do.....	Venezuela.....	25.4024 pounds.
Arroba (liquid).....	Cuba, Spain, and Venezuela.....	4.263 gallons.
Arshine.....	Russia.....	28 inches.
Arshine (square).....	do.....	5.44 square feet.
Artel.....	Morocco.....	1.12 pounds.
Baril.....	Argentine Republic and Mexico.....	20.0787 gallons.
Barrel.....	Malta (customs).....	11.4 gallons.
Do.....	Spain (raisins).....	100 pounds.
Berkovet.....	Russia.....	361.12 pounds.
Bongkal.....	India.....	832 grains.
Bonw.....	Sumatra.....	7.096.5 square meters.
Bu.....	Japan.....	0.1 inch.
Butt (wine).....	Spain.....	140 gallons.
Caffiso.....	Malta.....	5.4 gallons.
Candy.....	India (Bombay).....	529 pounds.
Do.....	India (Madras).....	520 pounds.
Cantar.....	Morocco.....	113 pounds.
Do.....	Syria (Damascus).....	575 pounds.
Do.....	Turkey.....	124.7036 pounds.
Cantaro (Cantar).....	Malta.....	175 pounds.
Carga.....	Mexico and Salvador.....	300 pounds.
Catty.....	China.....	1.333½ (1¼) pounds.
Do.....	Japan.....	1.31 pounds.
Do.....	Java, Siam, Malacca.....	1.35 pounds.
Do.....	Sumatra.....	2.12 pounds.
Centaro.....	Central America.....	4.2631 gallons.
Centner.....	Bremen and Brunswick.....	117.5 pounds.
Do.....	Darmstadt.....	110.24 pounds.
Do.....	Denmark and Norway.....	110.11 pounds.
Do.....	Nuremberg.....	112.43 pounds.
Do.....	Prussia.....	113.44 pounds.
Do.....	Sweden.....	93.7 pounds.
Do.....	Vienna.....	123.5 pounds.
Do.....	Zollverein.....	110.24 pounds.
Do.....	Double or metric.....	220.46 pounds.
Chih.....	China.....	14 inches.
Coyan.....	Sarawak.....	3.098 pounds.
Do.....	Siam (Koyan).....	2.667 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalent.
Cuadra.....	Argentine Republic.....	4.2 acres.
Do.....	Paraguay.....	78.9 yards.
Do.....	Paraguay (square).....	8.077 square feet.
Do.....	Uruguay.....	Nearly 2 acres.
Cubic meter.....	Metric.....	35.3 cubic feet.
Cwt. (hundredweight).....	British.....	112 pounds.
Desiatine.....	Russia.....	2.6997 acres.
Do.....	Spain.....	1.599 bushels.
Drachme.....	Greece.....	Half ounce.
Dun.....	Japan.....	1 inch.
Egyptian weights and measures.....	(See CONSULAR REPORTS No. 144.)	
Fanega (dry).....	Central America.....	1.5745 bushels.
Do.....	Chile.....	2.575 bushels.
Do.....	Cuba.....	1.599 bushels.
Do.....	Mexico.....	1.54728 bushels.
Do.....	Morocco.....	Strike fanega, 70 lbs. full fanega, 118 lbs.
Do.....	Uruguay (double).....	7.776 bushels.
Do.....	Uruguay (single).....	3.888 bushels.
Do.....	Venezuela.....	1.599 bushels.
Fanega (liquid).....	Spain.....	16 gallons.
Feddán.....	Egypt.....	1.03 acres.
Frail (raisins).....	Spain.....	50 pounds.
Frasco.....	Argentine Republic.....	2.506 quarts.
Do.....	Mexico.....	2.5 quarts.
Fuder.....	Luxemburg.....	264.17 gallons.
Garnice.....	Russian Poland.....	0.88 gallon.
Gram.....	Metric.....	15.432 grains.
Hectare.....	do.....	2.471 acres.
Hectoliter:		
Dry.....	do.....	2.838 bushels.
Liquid.....	do.....	26.417 gallons.
Joch.....	Austria-Hungary.....	1.422 acres.
Ken.....	Japan.....	4 yards.
Kilogram (kilo).....	Metric.....	2.2046 pounds.
Kilometer.....	do.....	0.621376 mile.
Klafter.....	Russia.....	216 cubic feet.
Kota.....	Japan.....	5.13 bushels.
Korree.....	Russia.....	3.5 bushels.
Last.....	Belgium and Holland.....	85.134 bushels.
Do.....	England (dry malt).....	82.52 bushels.
Do.....	Germany.....	2 metric tons (4,480 pounds).
Do.....	Prussia.....	112.29 bushels.
Do.....	Russian Poland.....	11¾ bushels.
Do.....	Spain (salt).....	4,760 pounds.
League (land).....	Paraguay.....	4,633 acres.
Li.....	China.....	2,115 feet.
Libra (pound).....	Castilian.....	7,100 grains (troy).
Do.....	Argentine Republic.....	1.0127 pounds.
Do.....	Central America.....	1.043 pounds.
Do.....	Chile.....	1.014 pounds.
Do.....	Cuba.....	1.0161 pounds.
Do.....	Mexico.....	1.01465 pounds.
Do.....	Peru.....	1.0143 pounds.
Do.....	Portugal.....	1.011 pounds.
Do.....	Uruguay.....	1.0143 pounds.
Do.....	Venezuela.....	1.0161 pounds.
Liter.....	Metric.....	1.0267 quarts.
Livre (pound).....	Greece.....	1.1 pounds.
Do.....	Guiana.....	1.0991 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalent.
Load.....	England (timber).....	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 super- ficial feet.
Manzana	Costa Rica.....	1½ acres.
Marc.....	Bolivia.....	0.507 pound.
Maund.....	India.....	82½ pounds.
Meter.....	Metric	39.37 inches.
Mil.....	Denmark.....	4.68 miles.
Do.....	Denmark (geographical).....	4.61 miles.
Morgen.....	Prussia.....	0.63 acre.
Oke.....	Egypt.....	2.7225 pounds.
Do.....	Greece.....	2.84 pounds.
Do.....	Hungary.....	3.0817 pounds.
Do.....	Turkey.....	2.85418 pounds.
Do.....	Hungary and Wallachia.....	2.5 pints.
Pic.....	Egypt.....	21¼ inches.
Picul.....	Borneo and Celebes.....	135.64 pounds.
Do.....	China, Japan, and Sumatra.....	133½ pounds.
Do.....	Java.....	135.1 pounds.
Do.....	Philippine Islands (hemp).....	139.45 pounds.
Do.....	Philippine Islands (sugar).....	140 pounds.
Pie.....	Argentine Republic.....	0.9478 foot.
Do.....	Castilian	0.91407 foot.
Pik.....	Turkey.....	27.9 inches.
Pood.....	Russia.....	36.112 pounds.
Pund (pound).....	Denmark and Sweden.....	1.102 pounds.
Quarter.....	Great Britain.....	8.252 bushels.
Do.....	London (coal).....	36 bushels.
Quintal.....	Argentine Republic.....	101.42 pounds.
Do.....	Brazil.....	130.06 pounds.
Do.....	Castile, Chile, Mexico, and Peru.....	101.61 pounds.
Do.....	Greece.....	123.2 pounds.
Do.....	Newfoundland (fish).....	112 pounds.
Do.....	Paraguay.....	100 pounds.
Do.....	Syria.....	125 pounds.
Do.....	Metric	220.46 pounds.
Rottle.....	Palestine.....	6 pounds.
Do.....	Syria.....	5¾ pounds.
Sagen.....	Russia.....	7 feet.
Salm.....	Malta.....	490 pounds.
Se.....	Japan.....	3.6 feet.
Seer.....	India.....	1 pound 13 ounces.
Shaku.....	Japan.....	10 inches.
Sho.....	do.....	1.6 quarts.
Standard (St. Petersburg).....	Lumber measure.....	165 cubic feet.
Stone.....	British	14 pounds.
Suerte.....	Uruguay.....	2,700 cuadras (<i>see</i> cua- dra).
Tael.....	Cochin China.....	590.75 grains (troy).
Tan.....	Japan.....	0.25 acre.
To.....	do.....	2 pecks.
Ton.....	Space measure.....	40 cubic feet.
Tonde (cereals).....	Denmark.....	3.94783 bushels.
Tondeland	do.....	1.36 acres.
Taubo.....	Japan.....	6 feet square.
Tsun.....	China.....	1.41 inches.
Tunna.....	Sweden.....	4.5 bushels.
Tunnland	do.....	1.22 acres.
Vara.....	Argentine Republic.....	34.1208 inches.
Do.....	Castile.....	0.914117 yard.
Do.....	Central America.....	38.874 inches.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalent.
Vara.....	Chile and Peru	33.367 inches.
Do.....	Cuba.....	33.384 inches.
Do.....	Curaçao.....	33.375 inches.
Do.....	Mexico.....	33 inches.
Do.....	Paraguay.....	34 inches.
Do.....	Venezuela.....	33.384 inches.
Vedro.....	Russia.....	2.707 gallons.
Vergees.....	Isle of Jersey.....	71.1 square rods.
Verst.....	Russia.....	0.663 mile.
Vlocka.....	Russian Poland.....	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
 Centigram ($\frac{1}{100}$ gram) equals 0.1543 grain.
 Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
 Gram equals 15.432 grains.
 Decagram (10 grams) equals 0.3527 ounce.
 Hectogram (100 grams) equals 3.5274 ounces.
 Kilogram (1,000 grams) equals 2.2046 pounds.
 Myriagram (10,000 grams) equals 22.046 pounds.
 Quinal (100,000 grams) equals 220.46 pounds.
 Millier or tonnea—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measure.

Millimeter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
 Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
 Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
 Liter equals 0.908 quart.
 Decaliter (10 liters) equals 9.08 quarts.
 Hectoliter (100 liters) equals 2.838 bushels.
 Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measure.

Millimeter ($\frac{1}{1000}$ liter) equals 0.27 fluid ounce.
 Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
 Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
 Liter equals 1.0567 quarts.
 Decaliter (10 liters) equals 2.6417 gallons.
 Hectoliter (100 liters) equals 26.417 gallons.
 Kiloliter (100 liters) equals 264.17 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
 Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
 Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.
 Meter equals 39.37 inches.

Decameter (10 meters) equals 393.7 inches.

Hectometer (100 meters) equals 328 feet 1 inch.

Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).

Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.

Are (100 square meters) equals 119.6 square yards.

Hectare (10,000 square meters) equals 2.471 acres.

655A—II

CIRCULAR.

DEPARTMENT OF STATE,
Washington, December 15, 1893.

To the Consular Officers of the United States:

GENTLEMEN: You are hereby requested to prepare reports for publication showing in what manner the lumber exports from this country may be increased.

The following interrogatories cover the principal points upon which information is desired:

(1) What are the native woods? (If any of these are of an uncommon variety describe them.)

(2) What are the kinds of lumber used and which are preferred?

(3) What is the amount of lumber imported from other countries? (Name the countries.)

(4) If any import duty is laid upon foreign lumber, what is the amount?

(5) What are the prices of lumber?

(6) Give a general description of the climate of your district?

Information is also desired concerning the extent of general building, shipbuilding, and railroad building in your district.

All suggestions concerning the methods to be pursued to extend the foreign trade (already considerable) of this country in lumber will be of value.

I am, gentlemen, your obedient servant,

EDWARD H. STROBEL,
Third Assistant Secretary.

The foregoing circular was sent to the following consulates, given in the order of the publication of their replies:

Africa: Madeira (Funchal), Sierra Leone, South Africa (Cape Town), and Zanzibar.
America:

Dominion of Canada: New Brunswick and Nova Scotia (Halifax).

Mexico: La Paz, Mazatlan, Nogales, and Vera Cruz.

Central America: British Honduras (Belize), Guatemala, and Salvador (San Salvador).

South America: Argentine Republic (Buenos Ayres), Brazil (Rio de Janeiro), Chile (Valparaiso), Colombia (Barranquilla and Colon), Dutch Guiana (Paramaribo), Ecuador (Guayaquil), West Indies (St. Thomas).

Asia:

British Asia: Ceylon and India (Calcutta).

China: Amoy, Canton, Hongkong (British), and Tien-Tsin.

Japan; Nagasaki, and Osaka and Hiogo.

Java (Batavia).

Siam (Bangkok).

Turkey in Asia: Palestine (Jerusalem) and Syria (Beirut).

Australasia: New Zealand (Auckland), New South Wales (Sydney), South Australia (Adelaide), Tasmania (Hobart), and Victoria (Melbourne).

Europe:

Austria-Hungary: Austria-Hungary (Triest) and Bohemia (Prague).

France: Bordeaux and Marseilles.

Germany: Bavaria (Nuremberg), Bremen, Frankfort-on-the-Main, and Hamburg.

Norway: Christiania.

Portugal: The Azores (Fayal).

Russia: Riga.

Turkey in Europe: Constantinople.

United Kingdom: Birmingham, Dundee, Falmouth, Glasgow, Hull, Leeds, Liverpool, and Newcastle-on-Tyne.

Polynesia: Hawaiian Islands (Honolulu), New Caledonia (Noumea), Samoa (Apia).

The following consulates, to which the circular was also sent, have failed to report up to the date of going to press:

Antwerp, Archangel, Bathurst, Bergen, Bogota, Bombay, Callao, Gorée-Dakar, Guaymas, Kanagawa, London, Managua, Monrovia, Montevideo, Saigon, San Juan del Norte, Santo Domingo, St. Martin, and Singapore.

DYEWOODS.

On December 20, 1893, the consuls of the United States in Brazil, British Guiana, British Honduras, Colombia, Costa Rica, Cuba, Haiti, Honduras, Jamaica, and Mexico were instructed to report upon the dyewood industries of their respective districts. Reports, in answer to the instruction mentioned, were received and published in Consular Reports Nos. 162 and 166, for March and July, 1894.

AMERICAN LUMBER IN FOREIGN MARKETS.

AFRICA.

MADEIRA.

NATIVE WOODS.

Of native trees the til is the largest and handsomest. It has shining, deep green leaves. The wood is brown, marked with dark veins, and is susceptible of high polish. It is in much demand for furniture, boxes, walking sticks, and souvenirs generally. Newly cut, til has a disagreeable odor and can be used only when well seasoned.

The vinhatico is a fine tree. The wood is red and much used for furniture. It is often called Madeira mahogany.

The aderno grows to the height of 60 feet and is used for cask staves. The wood is white.

Azevinho and perado are closely allied trees, and are common species of holly. The wood is white and is used for inlaid work. They attain a height of 15 to 20 feet.

None of the foregoing trees are found elsewhere, except in the Canaries. The pao branco is a handsome tree, attaining a height of 50 feet. It has a hard white wood, and is in much demand for keels of boats. It grows readily from the seed. It is not found elsewhere except in the Canaries and Azores.

The folhado is a fine tree, attaining a height of 60 feet. In summer it is full of white, sweet-scented flowers. Its wood is tough and of light weight. It is of great interest to botanists, belonging to a genus of which all the species, except this, are American.

These are about all the native woods that are used for manufacturing.

KINDS OF LUMBER USED.

The kinds of lumber used and preferred here are spruce, and white and pitch pine.

IMPORTS AND DUTIES.

All the lumber used here comes from the United States and Nova Scotia.

The import duty upon foreign lumber is as follows:

Kinds and sizes.	Duties.	Local tax (additional).
Balks, beams, and boards, 75 millimeters thick, by not less than 35 centimeters wide	<i>Cubic meter.</i> \$1.40	<i>Cubic meter.</i> \$0.20
Sawn into boards 35 millimeters thick and 75 millimeters wide	2.80	.32½
Sawn into boards 15 millimeters thick up to 35 millimeters wide	4.00	.32½
Boards less than 15 millimeters thick	6.00	.32½
Spars for ships	3 per cent ad valorem.	.....

Balks, beams, and boards are those imported in greatest quantities.

PRICES AND CLIMATE.

The prices of lumber here are from 2 cents to 6 cents per superficial foot, 12 by 1 inches. I give a general description of the climate, as taken from "Climate and Resources of Madeira," by Michael C. Graham, M. D., F. R. G. S.

Madeira has a mean annual temperature of 67.3°; the average heat of summer is hardly more than 70°, whilst the mean temperature of the winter season is always above 60°. The extreme heat of summer is seldom more than 77° in the hottest part of the day, whilst in winter the lowest possible temperature is hardly under 50° in the coldest part of the night. The range of temperature during the day and night is likewise marked by the same moderation. Varying from 5 to 15° and averaging 9°, the mornings and evenings are almost always cool and refreshing, and the decline of temperature is constantly gradual and continuous, without any sudden depression at sunset.

In the winter season we have our greatest atmospheric dryness, and the solar rays are not then excluded by any dense shield of watery vapor. As the spring advances the moisture of Madeira is increased, and the solar rays are greatly intercepted; but, eventually, in the summer the northeast wind arises, in latitudes far north, and reaches this region in moderate dryness.

I should remark that in Madeira the dampest atmospheres occur during the warmest weather. We know nothing of the cold damp of northern climates, nor has any fog or surface mist a place in this climate.

The annual rainfall is 29 inches; I believe that estimate to represent fairly the average amount, and moreover, it closely coincides with the deductions of others. There are, however, considerable variations; in some years the whole amount has not reached 20 inches, while in other years it has exceeded 40 inches, but an amount between 25 inches and 30 inches may be looked for with tolerable certainty.

It is by no means clear that the annual fall of rain has been affected by the destruction of the forests.

Here I may state that in Funchal there has been no change in one hundred and thirty years, and that the recorded rainfall is now exactly what it was when the fall of rain was first measured. The rain usually commences in October in heavy showers. The autumn rains are variable in amount and duration. After a few days, a period of fine weather is to be expected; but November and December are generally interspersed with rain days. The winter rains are quite tropical in character, the water falling in dense intermitting showers, and generally unaccompanied by wind.

In December, 1867, one of my rain gauges, holding 2½ inches, filled and overflowed in a single night. The month of January is often without rain, and then is, perhaps, the driest and pleasantest month of the year. Sometimes, however, it counts many days of rain. February, likewise, is uncertain, and has been in my experience the wettest, windiest, and most unsettled month. March usually brings much fine weather, but rain sometimes falls on several days. April and May are spring months with occasional showers. June is almost invariably cloudy. July, August, and September are cloudless months of unbroken sunshine. The wet weather of Madeira is seldom lasting, and in the entire winter there are few consecutive rainy days.

Annually there are eighty days in which rain falls. The fall of snow upon the mountains generally happens in January or February; it seldom lies long upon the hills. Snow is seldom seen upon the mountains lower than 3,000 feet above Funchal; and it has probably never been known to lie nearer in altitude than 2,500 feet.

GENERAL BUILDING.

There is nothing doing here in the way of general building. In the line of ship building nothing but small boats are constructed.

We have one short railway, of about 3 miles, from the city to the top of the mountain.

THOMAS C. JONES,
Consul.

FUNCHAL, *February 21, 1894.*

SIERRA LEONE.

NATIVE WOODS.

Native woods used in building here are oak, whismore, brimstone, teak, mahogany (two varieties), rosewood (fine quality), and black walnut. These are durable woods that will withstand insects and weather.

KINDS OF LUMBER USED.

The native woods are used in the framing and outside works, and American pine for finishing. The nicest finish is obtained by using rosewood.

IMPORTS OF LUMBER.

During the year 1893, 855,971 feet of pine lumber were received at this port from the United States. No other country sends lumber to Sierra Leone.

DUTY AND PRICES.

The import duty on lumber is 7½ per cent ad valorem, invoice price.

The present prices of lumber in this market are: Sawed lumber, lineal measure, 1 inch thick, board measure, \$40 per 1,000 feet; clear pitch pine, planed on one side, \$60; if tongued and grooved, \$80.

CLIMATE.

The climate is variable. The rainy season begins about the middle of June and lasts until about the middle of November. The rainfall is not steady. It averaged about twelve days in a month in 1892. In September, 1893, it was seventeen days. In 1893 the rains were a little over the average. The temperature ranges, the year round, between 75° and 95°, rarely getting above 95°, and always falling at night to 80° or a little below. The climate is damp and unhealthy near the seaboard.

GENERAL BUILDING.

For general building the material commonly used is stone, of which there is an abundance here. It is soft and porous when first dug out of the ground, but hardens by exposure. It is of a light brown color, and lighter than brick. The architecture here is of the old Spanish style, the main entrance being, in some instances, in the back of the house.

EXTENSION OF LUMBER TRADE.

As regards the methods of increasing the lumber trade here, competition is needed. There are only two firms here dealing in lumber, which is but a branch of their other mercantile business. A lumber dealer here with sash and door and planing mill would find a good trade. There is nothing of the kind here; no machinery in the colony but "sewing machines," and those are English. There is no shipbuilding nor railroads in the colony. There are no Americans here to introduce American articles. The American goods here are handled by French and English merchants, who know but little of the United States and its people.

BOLDING BOWSER,
Consul.

SIERRA LEONE, *January 20, 1894.*

SOUTH AFRICA.

NATIVE WOODS.

The principal native woods of South Africa are as follows: Yellowwood (2 kinds), black and white ironwood, stinkwood, olyreuhout (olive), assagai, white pear, kerschout (candlewood), white alder, etc. None of these woods grow in sufficient quantities to cut any figure in lumber problems, except the following: Yellowwood, which somewhat resembles poplar, though it is harder and has a cross grain, and stinkwood, which is more like our American walnut, and has many colors and shades when polished.

KINDS OF LUMBER USED.

As regards the kind of lumber used and preferred here, I would say that poplar, basswood, pine shelving, and walnut take the lead.

IMPORTS OF LUMBER.

I have not been able to learn the amount of lumber imported, but nearly all that comes is from the United States and Australia. In connection herewith I attach a clipping from the Cape Times of the 8th instant:

Those who are interested in the promotion of the Colonial timber trade will be somewhat alarmed to hear of the arrival from Australia of a cargo of timber, much of it consisting of wagonwood and other forms of manufactured timber which can be produced in the Colony. The cargo was brought by the ship *Esempio*, which arrived here from Hamelin on Tuesday, and consisted of 1,638 pieces of timber, 5 bundles of pickets, 2 bundles of laths, 2 bundles of shingles, 1 bundle of spokes, and 16 bundles of felloes, for this port, and 3,612 pieces of timber for Port Elizabeth.

DUTY AND PRICES.

The import duty is 4 cents per cubic foot.

The prices of lumber are as follows:

Yellow-wood planks (native)	per cube..	\$0.60
Stinkwood planks (native)	do....	.84
Walnut, 1½-inch board	per M..	126.00
Ash, 1-inch board.....	do....	61.00
Poplar, plain, 1-inch board.....	do....	40.00
figured, 1-inch board.....	do....	80.00

CLIMATE.

The climate of this district is hot and dry during November, December, January, and February; occasional rains in March; a good deal of rain in April, May, June, and July, while August, September, and October (spring months), are delightful in every way. No snow or frost ever comes, and flowers are in bloom all through the year. The northern part of the district (in the South African Republic and Orange Free State) enjoys a little cooler weather during the winter months, but is flooded with water at this season.

GENERAL BUILDING.

There is a good deal of general building all through the district, and some railroad building west from Beira to Salisbury, though the number of miles to be finished this year is only 45. I know of no ship-building.

EXTENSION OF LUMBER TRADE.

Considerable wood has lately been ordered from the Puget Sound district for use at Kimberly and other inland points. The removal of our tariff on wool, which is largely produced here, will doubtless stimulate this section to purchase American products in return, and American interests in mining and trade generally are already large in this locality.

ACKNOWLEDGMENT.

D. Isaacs & Co., of Cape Town, have kindly supplied me with prices, etc. They employ about 200 men in the manufacture of furniture, and import directly from the United States.

C. H. BENEDICT,
Consul.

CAPE TOWN, *March 12, 1894.*

ZANZIBAR.

NATIVE WOODS.

The native woods used in building are mangrove and cocoanut. Besides these, there are the mango and a small fir.

IMPORTS, DUTY, AND PRICES.

Very little lumber is imported, and that little comes from England and India.

There is no import duty on lumber. The price varies greatly, and depends on the supply and exchange.

CLIMATE.

The climate is tropical, Zanzibar being 6° south of the equator. There is a long and a short rainy season, and a hot and cool season. During the latter, the thermometer averages about 80°.

GENERAL BUILDING.

There is no ship or railroad building, except that at Tanga, 75 miles north of here. A railroad is now being commenced; all materials for its construction come from Germany.

All houses, except native swahili huts, are built of coral rock and lime. For ceilings and roofs, mangrove poles are laid across and coral rock and native cement filled in. Doors between rooms are unusual. Outside doors are mostly made of teak, brought from Bombay. Native huts are made of a framework of mangrove poles tied together the spaces between poles being filled in with mud; the roofs are of cocoanut leaves.

There is not a single wooden house in Zanzibar or vicinity. It would be impossible to live in them on account of the heat.

EXTENSION OF LUMBER TRADE.

The quantity of lumber used is so limited that it would not be profitable to export from the United States to this place.

J. W. ALLEN,
Acting Consul.

ZANZIBAR, *March 22, 1894.*

AMERICA.

DOMINION OF CANADA.

NEW BRUNSWICK AND NOVA SCOTIA.

I inclose circular from the house of Hon. J. B. Snowball, Chatham, New Brunswick, relating to the lumber trade in the maritime provinces for 1893. Mr. Snowball is a senator representing New Brunswick in the upper Dominion house, and issues a similar circular yearly, which is generally copied into the newspapers as authoritative on the matter to which it relates.

DARIUS H. INGRAHAM,
Consul-General.

HALIFAX, *January 11, 1894.*

[J. B. Snowball's Miramichi Wood Trade Circular for the year 1893.]

CHATHAM, NEW BRUNSWICK, CANADA, *December 30, 1893.*

The winter of 1892-'93 proved the most favorable for log-getting of any we have had for many years, consequently we had a much larger output for the force employed than was anticipated. Spring freshets were poor, and driving expensive. About 10,000,000 superficial feet of logs were left in the brooks.

Notwithstanding the favorable season, the export from this port fell off 12,000,000 superficial feet from last year. And while the exports from St. John were 10,000,000 more than in 1892, still the exports for the province show a decrease of 13,000,000. The increased export from Nova Scotia is caused by the excessive quantity of birch deals shipped from that province.

The present winter is the most severe experienced here for twenty years. Snow is now deeper all over eastern Canada than any time last winter. Operations in this district were entered into on a limited scale, and with an anticipated production of 25 per cent less than last year, but the severe weather is likely to reduce the production below this estimate, and next year's export from this port must be small.

The proposed United States tariff, if adopted for wood goods, will have an indirect beneficial effect on the trade of this section of New Brunswick. Freight rates from eastern New Brunswick to United States ports are so high in comparison with those from St. John and Bay of Fundy ports that our trade in that direction is about nil, excepting in laths and shingles, but under the proposed tariff the export of a considerable portion of the southern and western portions of this province is likely to be attracted to American ports, leaving more of the transatlantic trade to be supplied from this section.

France, Spain, and Mediterranean ports have taken a larger portion of our exports this year than formerly, and if the "favored nation" treaty is ratified, as it will probably be at once, between France and Canada, a larger portion of our export is likely to go to that country, to the great relief of the English market, and with a fair prospect of better prices for spruce.

The stock of merchantable deals wintering here is 7,600 in St. Petersburg standards,* against 7,000 standards last year and 11,000 standards in 1891. Logs are 4,000 standards against 3,000 last year.

Shipments from Miramichi for twelve years, from 1882 to 1893, inclusive.

[Superficial feet.]

1882.....	117,000,000	1888.....	73,000,000
1883.....	149,000,000	1889.....	110,000,000
1884.....	108,000,000	1890.....	88,000,000
1885.....	87,000,000	1891.....	72,000,000
1886.....	72,000,000	1892.....	95,000,000
1887.....	68,000,000	1893.....	83,000,000

Exports of Miramichi lumber, 1893.

Whither exported	Number vessels.	Tons.	Deals, scant- ling, ends, and boards.	Palings.	Spool wood.
			<i>Super. feet.</i>	<i>Pieces.</i>	<i>Pieces.</i>
Great Britain:					
Ayr.....	1	604	556,059		
Aberdevev.....	1	332	346,679		
Bowling.....	3	1,787	768,585		793,083
Barrow.....	5	5,619	5,716,990		
Birkenhead.....	1	586	553,000		
Cardiff.....	3	2,252	1,982,000		
Fleetwood.....	2	1,738	947,695	898,025	
Garston.....	3	1,841	711,301	1,486,400	
Greenock.....	1	739			503,439
Glasgow Dock.....	1	374	381,386	4,800	
Liverpool.....	15	18,190	19,650,298	13,600	
London.....	2	1,144	952,076		
Newport.....	2	1,839	1,603,073		
Preston Dock.....	1	439	445,000	4,800	
Penarth Roads.....	1	1,143	954,000		
Plymouth.....	2	1,340	1,150,203		
Swansea.....	2	1,298	1,128,678		
Silloth Dock.....	2	1,105	1,076,296		
Whitehaven.....	1	421	400,314		
Total.....	49	42,791	39,333,633	2,407,025	1,296,522
Ireland:					
Arklow.....	1	248	272,634		
Belfast.....	19	17,350	16,747,673	159,353	
Coleraine.....	1	251	265,358		
Conway.....	1	490	432,242		
Dublin.....	8	6,037	5,493,108		
Dundrum.....	2	508	533,311		
Dundalk.....	1	320	353,904		
Londonderry.....	3	2,279	2,120,127		
Larne.....	4	2,135	2,099,353		
Newry.....	1	936	904,346		
Trillick.....	1	528	444,723		
Waterford.....	2	1,274	1,180,078		
Total.....	44	32,356	30,850,877	159,353	
France:					
Cette.....	1	932	819,490		
Marseilles.....	4	2,377	2,192,231		
Cette.....	1	1,159	1,382,672		
Marseilles.....	1	508	569,846		
Port Vendres.....	1				
Total.....	7	5,066	4,904,239		

* Standard equals 165 cubic feet.

Reports of Miramichi lumber, 1893—Continued.

Whither exported.	Number vessels.	Tons.	Deals, scant- ling, ends, and boards.	Palings.	Spool wood.
Spain:			<i>Super. feet.</i>	<i>Pieces.</i>	<i>Pieces.</i>
Barcelona	3	2,150	1,053,229	.....	.....
Bilbao	1	426	418,343	.....	.....
Cartagena	2	1,358	1,264,003	.....	.....
Las Palmas	1	289	285,695	.....	.....
Cartagena	2	1,642	1,348,802	.....	.....
Mazarron	1	832	746,336	.....	.....
Valencia	1	192	168,023	.....	.....
Vianna de Castille	1			.....	.....
Total	11	6,889	6,184,491	.....	.....
Africa:					
Mostagnem	1	641	608,082	.....	.....
Oran	1	780	722,172	.....	.....
Total	2	1,421	1,330,254	.....	.....

Distribution by ports of St. John shipments, December 1, 1892, to December 1, 1893.

Whither exported.	Number of ves- sels.	Tons.	Deals, scant- ling ends, and boards.	Timber.
			<i>Super. feet.</i>	<i>Tons.</i>
Bristol	3	3,728	3,472,852	.....
Barrow	1	1,843	2,422,400	.....
Continent	6	3,734	3,573,604	.....
Fleetwood	11	14,477	14,402,277	.....
Garston	6	6,953	7,004,811	.....
Ireland	54	40,490	38,908,156	70
Liverpool	33	47,055	42,788,326	5,224
London	12	16,269	2,845,616	.....
Penarth, f. o	13	14,879	13,082,587	.....
Scotland	7	6,621	5,746,545	.....
Sharpness	6	9,066	8,420,545	.....
Wales	14	15,984	13,850,665	.....
Total	160	181,099	156,652,334	5,204

Shipments from St. John to transatlantic ports for the past sixteen years.

Years.	Total deals, etc.	Timber.			Total deals, etc.	Timber.	
		Birch.	Pine.			Birch.	Pine.
1878	<i>Super. feet.</i>	<i>Tons.</i>	<i>Tons.</i>	1886	<i>Super. feet.</i>	<i>Tons.</i>	<i>Tons.</i>
1879	188,168,610	7,989	2,493	1887	138,934,392	7,354	4,313
1880	153,279,357	11,548	3,237	1888	118,450,590	5,197	1,587
1881	215,485,000	16,035	2,441	1889	153,184,187	4,721	457
1882	210,281,730	5,134	1,734	1890	180,167,488	7,221	487
1883	201,413,717	7,576	3,332	1891	132,608,516	1,311	4,317
1884	181,517,932	11,778	3,883	1892	122,242,682	5,004	.....
1885	164,829,825	14,006	3,836	1893	146,529,309	10,200	.....
	152,543,026	13,769	3,686		156,653,334	5,294	.....

Total transatlantic shipments of New Brunswick, 1892, compared with 1893.

Ports.	1892.				1893.			
	Number of vessels.	Tons.	Deals, etc.	Timber.	Number of vessels.	Tons.	Deals, etc.	Timber.
			<i>Super. feet.</i>	<i>Tons.</i>			<i>Super. feet.</i>	<i>Tons.</i>
Miramichi	134	103,565	94,907,523	228	113	88,523	85,230,472	.....
St. John	164	165,207	146,529,309	10,250	160	181,099	156,653,334	5,294
Bathurst	17	10,746	9,866,015	24	18	11,810	10,176,000	102
Dalhousie (including Campbellton)	48	25,615	22,568,604	805	32	21,054	17,610,241	341
Richibucto (including Bectouche)	29	13,877	13,002,512	.....	22	11,188	10,557,663	.....
Shediac	23	11,278	10,156,333	.....	25	13,099	11,763,215	.....
Sackville (including Baie Verte)	24	13,775	14,576,566	.....	21	14,395	13,382,475	.....
Outports of Moncton, Hillsboro, Harvey, Cocagne	16	13,712	13,542,940	.....	8	7,040	6,870,085	.....
Total	455	357,775	325,149,811	11,307	405	348,208	312,243,485	5,737

The transatlantic shipments from the Province of New Brunswick for the past ten years were:

[Superficial feet.]

1884.....	333,000,000	1889.....	369,000,000
1885.....	292,000,000	1890.....	293,000,000
1886.....	276,000,000	1891.....	253,000,000
1887.....	250,000,000	1892.....	325,000,000
1888.....	277,000,000	1893.....	312,000,000

Shipments from Nova Scotia, 1893.

Ports.	Number of vessels.	Tons.	Deals, etc.	Birch timber.
			<i>Super. feet.</i>	<i>Tons.</i>
Outports of Amherst:				
Pugwash	10	6,467	} 17,300,000	.....
Northport	6	6,860		.....
Tidnish	9	9,281		.....
Halifax	64	39,456	34,352,656	990
Jordan River	1	524	415,108	.....
Parrsboro	39	44,426	40,792,496	.....
Pictou	20	12,990	6,888,000	4,616
St. Mary's River and Liscomb	7	4,823	4,315,680	.....
St. Margaret's Bay	5	2,935	2,593,698	.....
Sheet Harbor	2	1,403	1,316,092	.....
Ship Harbor	3	1,460	1,279,200	.....
Total	166	130,625	109,252,930	5,606

Shipment of deals from Nova Scotia to transatlantic ports.

[Superficial feet.]

1883.....	77,918,000	1889.....	92,605,488
1884.....	69,159,000	1890.....	99,512,924
1885.....	79,647,765	1891.....	78,603,742
1886.....	87,280,125	1892.....	87,861,398
1887.....	82,959,589	1893.....	109,252,930
1888.....	85,070,605		

MEXICO.

LA PAZ.

NATIVE WOODS.

Lower California, being divested of natural forests of pine and other timber, such as could be made useful for mining, shipbuilding, the manufacture of household articles, and for house material, is entirely dependent upon the Pacific ports and markets of the United States for supplies.

The native woods, existing in some of the valleys of the peninsula, are of no importance and can not be made available for any building purposes. The soil and climate are not adapted to timber-growing. This, together with the scarcity of rains and the lack of running streams, precludes it from ever becoming a timber country.

Boxwood, vainoro, sorrillo, yellowwood, Brazil or dyewoods of several kinds, ironwood, palo blanco, torote, and several others, found chiefly in the valleys, form the nucleus of the principal woods of the country. Some have fine grain, capable of high polish, but the trees are too small in size for the timber to be of any utility. Nevertheless the high range of mountains, running through the middle of the country, is more wooded than the lowlands. Palm trees of majestic heights, oak, pine, and fir, as well as the *Hueribo*, a gigantic tree and a species of cedar, can be seen in the gulches and crests of the mountains, which offer so many difficulties as to be out of reach for all practical purposes.

IMPORTS OF LUMBER.

The imports of lumber are exclusively from Oregon, Washington, and California. Redwood, pine, and white cedar are the kinds imported and preferred. About 2,000,000 feet of lumber are required to meet the yearly consumption.

PRICES.

The following are the wholesale and retail prices per foot of lumber:

	Cents.
Ordinary lumber of different dimensions.....	4½ to 5½
Planed of different dimensions	5 and 6
Pine flooring of different dimensions.....	6 and 7
White cedar of different dimensions.....	10 and 12

DUTY.

The import duty on pine lumber is as follows: Pine flooring, \$1 for 100 square meters; white planed cedar, 2 cents per kilogram; all others, common redwood and pine lumber, are on the free list.

CLIMATE.

The climate of this district is salubrious, the thermometer ranging from 60 to 90 Fahrenheit.

GENERAL BUILDING.

House and ship building are not carried on very extensively here. Mining and other industries consume the principal portion of the lumber imported.

EXTENSION OF LUMBER TRADE.

The lumber trade could be extended considerably if parties interested would establish a branch house in this city. The business people here do not take enough interest in the lumber trade, and during half of the year the market is without proper assortments.

JAS. VIOSCA,
Consul.

LA PAZ, *January 19, 1894.*

MAZATLAN.

NATIVE WOODS.

There are hundreds of varieties of almost indestructible hard construction woods in the forests of this section, which, as yet, are not well known in the United States. The following is a list of a few of the most common:

Alamo,
Alizo,
Amapa (black and white),
Arrayán,
Asta,
Binol Blanco,
Brazil,
Cabo de hacha,
Cocoba,
Cedro (white and red cedar),
Ebano (white and black ebony),
Guayacán,
Guasima,
Higuéro,
Huinaextle,

Haba,
Huamuchil,
Lignum vitæ
Mangle,
Mesquite,
Mora,
Nogal,
Pine,
Palo fiéro,
Palo colorado,
Palo dulce,
Roble,
Tecomate,
Tepemesquite,
Venadille, etc., etc.

KINDS OF LUMBER USED.

The only lumber used here is that imported from the United States. The reason American lumber is used exclusively is that all native woods close to the coast are very hard, while the sawing is done by hand, with very poor tools. The pine ranges, which abound in lumber, are inaccessible on account of the want of easy communication.

IMPORTS, PRICES, AND DUTY.

Red and white pine are the only kinds of lumber imported, and these sell well. The price of lumber at present is from \$70 to \$75 per 1,000 feet, the duty being only \$1 per 1,000 feet. The high price is due to exchange.

More lumber would be consumed, and its price would be less if ship-building and railroad-building were going on, but the only consumption is for small carpenter work.

CLIMATE.

Nature has done for this district all that could be desired in regard to climate. It is truly delightful, being one of the most equable that can be found on the continent, its atmosphere being unsurpassed for purity.

The dry season, which lasts from November to June, is the coolest part of the year, the barometer maintaining an average of 78° F.; the rainy season is somewhat warmer than the dry season, but is so tempered by the clouds and rain that a wonderful uniformity is maintained throughout the year, the thermometer rarely reaching 92° F., and then only for a short time.

ARTHUR DE CIMA,
Vice-Consul.

MAZATLAN, *January 31, 1894.*

NOGALES.

NATIVE WOODS.

The native woods are common pine, black and white oak, mesquite, ironwood, and cedar. The pine is only suitable for lumber.

Pine and redwood lumber are mostly used.

LUMBER IMPORTS AND PRICES.

Lumber is imported from the United States only.

Common pine sells for \$35 per 1,000; flooring, \$42; redwood dressed, \$45 to \$55, and shingles, \$5 per 1,000. The above prices are in American money.

CLIMATE.

The climate of this district is such that outdoor work can be performed during the entire year, and it is considered very healthful.

IMPORTS OF LUMBER.

Nearly all the lumber use in this district comes from California and Washington, via Guaymas.

GENERAL BUILDING.

Quite a number of buildings are now being constructed in Nogales, but there is no construction of railroads at present in this district.

EXTENSION OF TRADE.

With the excessive American duty removed on lead ores, and the return to an ad valorem duty on cattle, I believe that Sonora would become a much greater purchaser of American products in the future. There are merchants in Hermosillo and Guaymas who purchase from \$100,000 to \$500,000 worth of merchandise annually, yet very few of our commercial salesmen go beyond Nogales, thus leaving all this immense business to be secured by our European competitors.

REUBEN D. GEORGE,

Vice-Consul.

NOGALES, *December 30, 1893.*

VERA CRUZ.

NATIVE WOODS.

The native woods are: Mahogany, ebony, cedar, almond, hazel, balsam, passion flower, guachichil (a hard wood), also, laurel, weeping willow, manchinille, birds-eye, violet wood, rosewood, lignum vitæ, primrose, sopota both white and black (a wood of fine grain), indigo, Annatto, Brazil wood, logwood, green ebony, mastic, mangrove, fustic tawney wood, mountain hyssop, archil, madder. All these woods grow in this consular district, but only a few of them are much used.

KINDS OF LUMBER USED.

The kinds used are: For building purposes cedar, mahogany, and yellow pine. The pine comes from the United States and is preferred to native lumber. My observation leads me to suppose that cedar and mahogany are used, where heavy timber is required, and pine wherever inch lumber is used. More pine is used than cedar and more cedar than mahogany. Some of the other woods are used in the manufacture of chests and fine furniture, but these are too expensive for ordinary use.

IMPORTS OF LUMBER.

There is no lumber imported from any foreign country but the United States, and all lumber from there consumed here, comes from Pascagoula, except that used in the manufacturing of soap boxes, which comes in shoeks from the port of New York, being put together here.

There is quite an extensive trade in this kind of material.

PRICES.

The prices of lumber in Vera Cruz are: Pine, rough, wholesale, \$36, retail \$45 per 1,000; dressed, tongued and grooved, wholesale, \$37, retail, \$50 per 1,000. It is generally \$5 to \$10 per 1,000, higher at other ports in this district. These prices are in Mexican money. The Mexican dollar at present is worth only 55 cents American.

CLIMATE.

The climate adjacent to Vera Cruz is moist and hot, and, for about seven months of the year, unhealthy. There is a difference of opinion as to the climate north and south of this port, but I would say moist and warm, but more healthy. Forty to 50 miles inland from the coast the climate is mild and all that could be desired; about 80 miles inland Mount Orizaba is seen covered with snow at all times of the year. Thus it will be observed that in this consular district we have, within a less distance than 100 miles, land level with the sea and the highest peak in North America, with climate corresponding to the different altitudes.

GENERAL BUILDING.

House building, on a small scale, consumes considerable of the pine lumber brought from the United States. The ship-building carried on here consists of the making of sailboats and rowboats only, the largest not exceeding 60 tons burden. The construction of the Tehuantepec Railway is now under way, there being something like 125 miles completed on the Atlantic side, with, perhaps, an equal number of miles on the Pacific side.

EXTENSION OF LUMBER TRADE.

I can make no suggestions that would help to extend the lumber trade between the United States and this country; for I notice that all the lumber imported comes from the United States, and unless the natives can be induced to build better houses and more of them, or Americans come, take land, and settle here, the trade in American or any other kind of lumber will not improve.

CHARLES SCHAEFER,
Consul.

VERA CRUZ, *January 30, 1894.*

CENTRAL AMERICA.

BRITISH HONDURAS.

NATIVE WOODS.

It is difficult to suggest in what manner the lumber exports from the United States to this colony may be increased, as nearly all the lumber used for building purposes at present is American. The native woods used in building houses and boats form but a very small item in the total, because, until very recently, only one sawmill was in operation here, and that was mainly used by the firm who own it for their own private purposes. Two new sawmills have been erected in the past two years, and they bid fair to compete with the United States for a share of the lumber business, as there are undoubtedly many fine varieties of woods suitable for all purposes to be found in the forests of this colony.

Of cabinet woods, besides the well-known mahogany and cedar, there is an abundant supply, as will be seen from the inclosed list of woods, which is by no means an exhaustive one.

KINDS OF LUMBER USED.

The kinds of wood principally imported are white and pitch pine and cypress, all of which are used in house and boat building.

IMPORT DUTIES AND PRICES.

No lumber is imported from any other country than the United States.

A duty of \$1 per 1,000 feet on rough and \$1.50 on dressed lumber is collected by the Government.

Lumber in the rough sells here for \$50 per 1,000 feet and dressed lumber at \$55 to \$60.

CLIMATE.

The climate of this country is generally very healthy and although yellow fever, cholera, and smallpox have, on one or two occasions, visited its shores, these diseases have never originated here, but were always brought in, and were readily stamped out. The types of these diseases, when they have existed here, seem to have been much milder than in other countries, especially the first-named disease. Vaccination is compulsory and hence but few of the inhabitants of towns died from smallpox during its last visit in 1891, when it was brought here from Peten, in Guatemala, the deaths being confined almost entirely to the

Indians, whom it has hitherto been found difficult to reach for the purpose of vaccination. This, however, has been to a very large extent remedied and a more thorough system has been established. Cholera has not been known in this colony since 1866 and on that occasion it was brought here in a ship from South America. The following extract from an article written by Alexander Hunter, esq., late colonial surgeon, will convey a fair idea of the climate of this country:

The characteristic features of the climate of British Honduras during the greater portion of the year are a most equable temperature, with strong easterly breezes in the summer months or dry season; an absence of rain for three or four months from the end of January; and in the winter months cold northerly winds, which are generally dry and bracing; and land winds, fortunately not continuous, which usually bring a great deal of moisture from the neighboring collections of water, and much rain. Exposed to the full influence of the trade winds, the whole coast may be considered as unexceptionally healthy during their continuance, while the temperature does not vary more than 6° or 8° during the twenty-four hours. The atmosphere is dry, indeed it would be difficult to point out any place in the West Indies in which the humidity is so inconsiderable. During the rainy season, the commencement of which is variable, there are sometimes short periods of calm, in which, although the temperature is not appreciably heightened, the feeling of heat is great; but, fortunately, these calms are of rare occurrence and of short duration. The rainfall is variable; but from observations extending over a period of twenty-five years, the general average for a year is found to be between 40 and 50 inches.

The country around Belize is swampy and covered with dense mangrove bushes; but as these swamps communicate freely with the sea, and as they are constantly being filled and emptied by the flow and ebb of the tide, the malarious emanations, which under other circumstances would be sure to follow, are prevented by the mechanical, and perhaps chemical, changes which these collections of water undergo. This circumstance, combined with the frequency and strength of the sea breezes, forms the principal reason for that remarkable immunity from miasmatic diseases which the population enjoys, and which is all the more extraordinary when it is considered that all the essentials for the evolution of these noxious emanations exist, viz, heat, moisture, and decaying animal and vegetable matter.

GENERAL BUILDING.

House building has increased to a very great extent during the past ten years, especially among the poorer classes who, by means of the fruit trade which was established between this colony and New Orleans some thirteen years ago, have been enabled to erect their own dwellings.

Boat and schooner building has also increased to a great extent from the same cause, though the growing state of the logwood and other industries has contributed thereto.

Railroad building has not been engaged in, and it is difficult to say whether British Honduras will ever be blessed by the civilizing influences of the iron horse.

JAMES LEITCH,
Consul.

BELIZE, March 5, 1894.

THE WOODS OF BRITISH HONDURAS.

[Printed inclosure in Consul Leitch's report.]

The rise and progress of the colony of British Honduras has been indissolubly connected with the fortunes of its trade in timber and dyewoods.

Sub umbra floreo, in allusion to the mahogany tree, is the motto gratefully chosen by the colonist; but it is to the humbler denizen of the forest, the logwood shrub, that the colony owes its first recognition and early celebrity as a British plantation or settlement.

The chief industry of the colony is woodcutting, which has now been carried on for over two hundred years, and as a result much of the finest timber within easy reach of the principal rivers and their creeks has been cut down; but there are still vast tracts of virgin forests in the interior, abounding in some of the finest timber trees to be found in any part of the world. The difficulty is that they are beyond the reach of rivers, and, until the iron horse is introduced to solve the problem of bringing out our woods and stimulating the production and export of the old staples of the colony, must continue so. However, the fact remains that the quantity of wood exported maintains a fair average of the transactions for the last hundred years.¹ Indeed during the last ten years the average shipments have been more than doubled. The improved price of mahogany in 1883 stimulated its production, but the export, as in the case of logwood, depends upon market prices.

Mahogany (Swietenia mahogani).—The best qualities of mahogany come from the limestone soils to the north of Belize, those from the south being deficient in density and fine grain. In the present century a tree was cut, by a Mr. Charles Craig, of Honduras, the trunk of which yielded a log of 15 tons weight. It measured 5,168 superficial feet, squaring 57 inches by 64. The log was trucked out by Mr. Craig, and the limbs of it would probably when "manufactured"—that is, prepared for shipment—more than pay all expenses.²

Reliable returns are not procurable further back than 1802, when 2,250,000 feet are mentioned as the quantity exported; 1803, 4,500,000 feet; 1805, 6,481,000 feet. In 1824 it had kept the same figure; in 1840 it was reduced to 4,500,000 feet, but there had been overexportation in the few years preceding, and stocks had accumulated in the home markets; in 1837, for example, there were shipped from Belize 8,500,000 feet. The same mistake was made in 1845-'46. In the first of these years the returns show 9,919,507 feet, and in 1846 the enormous increase of 13,719,075 feet. A portion of these annual quantities was wood cut outside of the limits. The depression in the years 1848, 1849, 1850 is not difficult to account for. In 1874 the quantity had come down to the old figure of about 6,000,000 feet, and in 1878 lower still, 3,146,582 feet. The cost of cutting down and getting ready for shipment is about from \$40 to \$50 per thousand feet.¹

Cedar (Cedrus odorata).—Growing with the mahogany, it is a member of the same family. The export of this wood from the colony has greatly increased within the last few years. In 1876 the number of feet shipped was 18,923; in 1883, 469,144; in 1884, 348,341; in 1885, 277,111; in 1886, 132,498. In the colony the trunks of the largest trees are hollowed out to make dorays and pitpans, for which purpose they are admirably adapted on account of the light and durable character of the wood.

Logwood (Decandria monogynia).—This wood really comes next to mahogany in export value. It is found in rather moist lands, and grows luxuriantly in the swamps to the north and west, where it forms immense thickets.

The stem is crooked, and grows 16 to 24 feet high, seldom thicker than a man's thigh, the branches also crooked and irregular, thorny; leaves winged, and flowers pale yellow. The trunks are perpendicularly ribbed, and when cut down the outer white or sapwood is removed, leaving only the reddish or dark heartwood, which is

¹ Gibbe's British Honduras.² Honduras Observer, 1843.

cut into convenient logs suitable for shipment. It is claimed for Honduras logwood that it is superior to that grown in Jamaica and St. Domingo, and that its market value is fully 40 per cent higher. The yield of this wood is almost inexhaustible, as it seeds freely, and can be recut in ten to fifteen years. Its original value was £100 per ton, then £40; in 1825, £16; and it is now quoted at £5 to £7. Its export from the colony in 1713 to 1716 was 5,740 tons; in 1824, over 4,000; in 1874, 9,210 tons. The average for the last ten years has been 16,000 tons.

Its production for shipment requires less capital than mahogany, and is frequently undertaken by small capitalists employing small gangs, who pay a royalty for cutting on the estates.

It is brought down the rivers in "bark logs," or floating cradles made of the cabbage palm, and in dorays, in which it is also conveyed along the coast.

Amongst the other woods of the colony are—

The Sapodilla (Achras sapota).—This is a most durable wood, difficult, on account of its extreme hardness, to work, but it does work up handsomely in furniture. The tree grows tall and free from branches, and one variety bears a sweet fruit with a rough rind, the naseberry, the seeds of which are used as a diuretic. It is much used locally for uprights and beams in house carpentry, but owing to the great weight of the logs can not be floated down the rivers to the ports. If this difficulty of transportation be overcome—say by the introduction of railways—this wood must find its way to European and other markets in much larger shipments than is the case now. At present it can hardly be said to be exported. There are two varieties, the black and the red, one rather scarcer than the other and not half so lofty, although about the same girth. It is a tree which grows abundantly in Honduras.

Rosewood (Dalbergia sp.).—A very heavy, rich, dark-reddish wood, very desirable for cabinet purposes, and plentiful in the colony, growing to a height of 30 feet, with a girth of 36 to 38 inches. Owing to its weight it is difficult to transport by water, an obstacle to the exportation of many of the native furniture woods yet to be overcome; about 150 to 200 tons are probably the average exportation. The so-called Bastard Rose is a distinct variety, the wood of which works up much redder in color; and there is another illegitimate of the family, the Pix, found in the colony.

Sam or salmuwood (Jacaranda sp.).—A brown, very durable wood. On account of its being avoided by all kinds of insects, it is much appreciated for lining wardrobes, etc. It would, therefore, be very suitable for specimen cases for collectors of natural history objects, especially entomological specimens. The tree grows 50 feet high, with an average diameter of 2 feet. It is not exported.

Ziricote is by some considered a description of rosewood. Mr. Morris, director of the Botanical Garden, Jamaica, who made a professional tour through the colony a few years ago, at the request of the colonial government, states it to be scarce, but it is abundant in the northern district. It is only exported in small quantities. The same authority classes it amongst other timbers of the colony as yet unclassified and unknown to commerce.

Fustic.—A yellow dyewood; is well known to commerce and the trade; the *Morus tinctoria*. It is used locally for furniture work, and about 100 tons are annually exported.

Poisonwood.—Of so-called poisonwood there are apparently three varieties, but "Chechem" is simply the Indian name for all kinds of wood locally so designated. The trees are so named on account of their secreting an acrid juice which, dropping on the skin of the woodcutter, blisters it; and a local authority, a writer in the Colonial Guardian, reviewing the preliminary exhibition in Belize, describes the "Chechem" as a kind of Upas, to be under the shade of which for any time inflames the skin of the face and the eyes. The writer calls the wood of the same tree the "King of Woods," but he means of cabinet woods. The trees of the black variety are large and umbrageous, and both kinds grow abundantly in the region, the height averag-

ing between 80 and 100 feet, diameter 24 to 30 inches. The white variety of "Chem" appears to be the largest in its growth.

Santa Maria (Calophyllum calaba).—Very suitable for shingles and heavy machine work and buildings; its seeds also yield an abundant oil adapted for lamps. It is unsurpassed for shipbuilding. Height, 80 feet; diameter, 24 inches. The wood is hard and durable, and is used in the construction of mahogany trucks.

Mahol (Paritum elatum).—Yields a darkish-green wood of great value, as also the celebrated *Cuba bast*, an article of commerce prepared from the inner layers of the bark.

Balsam (Myrozylon tolifera).—Average height 40 feet and diameter 20 inches. It resembles both mahogany and sapodilla, the latter most in color of the wood. Both the gum and bark are used medicinally.

Bullet, or Bully Tree.—Height 60 to 80 feet, with a diameter of 18 inches. Plentiful. Wood not very workable, and therefore not much used. Tree yields a resinous gum.

Timber-sweet.—A low, stout tree, bearing a yellow berry; 25 to 30 feet in height, 24 to 30 inches diameter. Wood light; not used.

Madre Cacao (Erythrina umbrosa).—A plentiful tree. Height 40 to 50 feet, 15 inches in diameter. A fine hard wood, much used in house posts, and also as a shade in coffee and cacao plantations. Mr. Morris suggests as a preferable shade for cacao the India-rubber plant, giving more shade and very profitable to the planter. Grows easily from slips.

Bastard Rosewood.—Plentiful. Grows to 40 or 50 feet, 12 inches in diameter. Wood takes a high polish and is very tough.

White Maya.—A very tough wood, and takes a polish. The tree grows 60 feet, with 20 inches in diameter.

Calabash (Crescentia cujete).—A pretty growing tree, with the leaves peculiarly arranged on the branches (subpinnate). The edible pulp of the large round nut is hollowed out, and drinking cups are made of the shell.

Cabbage-bark Tree.—Grows plentifully, 40 feet by 15 or 20 inches; the wood hard and durable, used in house building and in the composition of trucks or spokes, &c.

Cinnamon, Wild.—Plenty of it; 30 feet by 16 to 18 inches diameter. Bark only used.

Buttonwood.—Extensively used locally to burn; is occasionally introduced as a variety in inlaid-cabinet work or veneering. The tree is not above 20 feet by 16 or 18 inches thick, and grows in swampy places. Used for ships' timbers.

Salaam.—A hard, durable wood, little known. Locally used for furniture, inlaid work, and capable of taking a fine polish.

Blackheart.—The tree attains a height of 30 feet, with a diameter of 12 inches. Wood hard, yellowish-brown in color, with a deep-colored heart. Takes a high polish.

Billy Webb.—In local use only. Height, 30 feet; diameter, about 24 inches. Used in constructing mahogany slides and trucks. It is plentiful, and an exceedingly tough wood.

Grandy Betty.—Grows plentifully; 40 feet by 12 inches. Wood not in use. Leaves used for a decoction.

Boy's Job.—Plentiful; 30 or 40 feet by 18 inches. A tough, hard wood; not in use, except the leaves medicinally and for snake bites.

John Crow.—Plentiful; 35 feet by 16 inches. Not used.

Pigeon Plum.—Plentiful; 40 to 50 feet by 12 to 15 inches.

Allepice (Pimento) (Eugenia pimenta).—A favorite wood for walking sticks. Its seeds are known and appreciated as a spice everywhere. The tree grows plentifully in the colony; 50 feet in height and 20 inches in diameter.

Fiddlewood (Citharexylum melanocardium).—Grows abundantly. A straight tree with copious foliage and branches, 50 to 60 feet in height, 5 feet in diameter. Little used.

Dogwood (*Piscidia erythrina*).—This is a tree of the genus *Cornus*, of which there are several species, exceedingly hard, called, also, dogwood. Javin is a variety of this wood with an Indian name. The trees grow large and straight, 80 to 100 feet, 24 to 30 inches diameter, and the wood of both is used for rollers of native sugar-mills, etc. Javin is slightly the hardest.

Granadilla.—Not to be confounded with the vine granadilla bearing a luscious fruit. This tree grows 80 feet high, and is 2 feet thick. It produces a hard, durable, finely grained red timber, and is abundant in the region. It rises 50 feet without a limb, and is therefore a conspicuous forest tree. The wood is used in furniture and house decoration.

Ironwood (*Laplacea hæmatoxylon*).—Every timber region has its own ironwood. This is an exceedingly hard, dark reddish wood, with a very fine grain. Tree 25 feet high, 10 inches in diameter.

Polewood.—So called, as it is used for poles to propel canoes and rivercraft in shallow places; height, 60 to 80 feet, 10 to 12 inches diameter. Grows straight and regular and is a little used in house carpentry.

Azmaster.—A tree the woodman takes his hat off to or gives it the go-by when he can. A dark wood taking a shining polish, 40 feet by 18 inches diameter. Not much used; the tree blunts the ax and the wood resists a nail.

Lignum vitæ.

Pix or pij.—Two bastard varieties of *L. vitæ*, evidently. The fruit is scarce, and is not used when found here, at all events. It attains a height of 40 feet, and is 12 inches thick, as a rule, when grown. Plentiful, straight-bodied, 40 feet in height, 10 inches diameter. Timber used for fence posts, and the twigs make very lasting thatch.

Teaboz.—A slender tree, not used, producing an edible berry and leaves, of which a decoction, "bush tea," is made. Thirty feet high, 10 to 12 inches diameter.

Prickly yellow.—Plentifully found. A straight-growing tree, 30 feet in height, 5 or 6 inches in diameter. Wood used for hoe and other agricultural tool handles.

Silly Young.—A large tree of 100 feet growth, producing durable house timber, which is also used for slides to slide mahogany and cedar logs.

Goodluck.—A fine hardwood, looking like dark-brown satin when polished. Probably a variety of the salmwood.

Redwood.—A strong-bodied tree of 60 to 80 feet growth and 12 inches thick. Wood hard and durable, used for fence posts and in house building, and lasting well.

Turtle bone.—A ponderous and hard wood, light yellow, taking a fine polish. Growing to a height a little under 20 feet; diameter, slight; very tough, and something like logwood.

Wild Provision (*Pachira aquatica*).—A common tree in moist places and river banks, bearing a fruit the size of a small pumpkin, the seeds of which are edible. Used for fencing posts, etc.

Craboo or Crabew (*Byrsonima spicata*).—A common tree, bearing a small, acid fruit, in size between a black currant and gooseberry, which, when sweetened, makes a pleasant, wholesome drink. The bark is also locally used medicinally.

My Lady.—Grows nearly 100 feet high and 18 inches to 2 feet diameter. A yellow wood, taking a fine polish; used both in house carpentry and cabinetwork.

Mangrove, Red (*Rhizophora mangle*).

Mangrove, black (*Rhizophora sp.*).

Mangrove, White (*Laguncularia racemosa*).—The manggi of the Malays. It grows along the seashore and river banks, rooting in the mud, the seeds germinating even while attached to the branches. The cays or islands in the Bay of Honduras are densely covered with it. The wood is used to burn and the bark as an astringent. It is also used in house building and occasionally in cabinetwork, also for ship-building, in which it has a great local repute, furnishing "knees" that require little molding into the necessary shape. Average growth, 30 to 50 feet; the black is the

lowest in stature. Red mangrove, 60 to 80 feet; white, 80 feet; black, 50 feet. Diameter of all, 20 inches.

Mayflower.—This is a deciduous tree, and takes a fine polish; has a profusion of purple blossoms in May, and is a handsome tree, wide-spread, and growing to 70 or 80 feet. Used for yokes.

Botan (Palmetto) (Sabal sp.).—The leaves are used for thatch, the stem for staking and piles; 60 feet by 5 inches.

Bullhoof.—Plentiful; 80 to 100 feet, 24 inches diameter. Grows straight; not used.

Yash Nick.—A beautiful cabinet wood.

Oak (probably Quercus virens).—A short, scrubby tree, 30 to 40 feet, 12 to 15 inches diameter, of which the wood is not used. The bark is used in tanning.

Walknaked (i. e., with its bark off).—Plentifully found, growing 40 to 50 feet high; a tough, unworkable wood; not in use.

Bribbi.—Plentifully found, growing about 50 feet. An umbrageous tree, with an edible berry. The wood is not used much.

Cabbage-palms (Euterpe montana, Areca oleracea, and Oreodoxa regia).—The mountain cabbage, the trunk of which is used, especially by Caribs, in constructing dwellings and for logwood rafts, called "bark logs."

Cabbage palms (Oreodoxa oleracea).—White and red varieties, both growing 80 to 100 feet, diameter 12 inches; outside very hard, and taking a good polish. Very durable; used in house building.

Cahoun Palm (Attalea Cohune).—The tree averages 55 feet in height; valuable for its oil-bearing nuts.

Cocconut Palm (Cocos mucifera).—The use of this familiar tree of the tropics as a furniture material is, perhaps, not generally known; it is very prettily polished; 60 to 80 feet.

Tuberuce.—Much used in constructing canoes.

Crammati.—The bark of this tree is used medicinally and the tree as a furniture wood.

Yemery or Emery.—Much used for canoes.

Gombolimbo (Symphonia sp.).—A tree of 60 to 80 feet stature, 20 to 24 inches diameter; plentiful, and yielding a gum. The leaves are used as a decoction,

Ramun or Ramon (Trophis americana).—Its foliage makes fodder for cattle, but is only used when bread nut can not be obtained. It is abundant, growing 50 feet high, 20 inches diameter; wood not used.

Cockspur (Acacia spadicifera) is armed with formidable spines, one at the base of each leaf and branch, 2 inches long.

Wire Beer (Psidium sp.).—A wild guava; plentiful; height, 40 feet; diameter, 8 to 10 inches. Wood not much used.

Water Wood.—Plentiful, at a height of 50 feet, growing straight; wood used for dwelling houses.

"Knock-me-Back".—A small tree of 25 feet elevation, found in swampy places growing plentifully. Wood used in house building. At the end of each leaf there is an extension into a prickle or thorn, hence the local appellation.

"Drunken Bayman".—Abundant, but not used; grows straight, 60 feet high, with a diameter of 20 inches.

Wild Tamarind (T. indica).—A most umbrageous, handsome tree, the fruit of which is well known, covering a wide space, and plentiful in the colony, 80 to 100 feet in height. The wood is used for *doreys*, *pitpans*, etc.; also for truck wheels.

Bread Nut (Brosimum alicastrum).—Grows 80 to 100 feet by 24 to 30 inches. Furnishes good fodder for cattle.

Glassy Wood.—A tall, slim tree, the wood of which is very tough. It grows 60 to 80 feet high, 12 to 18 inches in diameter; used for beams and wall plates in house building.

Iguana Blossom.—A tree so named from its being frequented by a genus of lizard—*Iguana tuberculata* of Laurenti—which, being herbivorous, feeds on the blossoms.

The original Carib name is *guana*, and these Indians, or their mixed descendants in Honduras, eat the animal which is common to tropical America, hence the tree is often corruptly similarly named. It is looked upon by some as a mere variety of madre cacao.

Negrito.—A straight grower, with a resemblance to a pine, 80 feet in height, 20 inches diameter. Its stem is used for masts of vessels.

Cashaw (*Prosopis juliflora*).—A fodder tree common in the West Indies and neighboring countries, but requires caution in using. If an animal is fed on the pods when the seeds are germinating the germination is continued in the animal's intestines, and if not relieved of its last meal the poor beast dies. Breeders of stock therefore eliminate it from their pastures. (Morris states that *Prosopis* yields also a gum resembling gum arabic, and the wood of it is hard and durable.)

The Cashew (*Anacardium occidentale*) is a favorite plant on account of its edible seeds, which grow peculiarly, namely, at the end of the beautifully colored swollen stalk. The tree belongs to the sumac (*Rhus*) family, and the fleshy stalk, besides being eaten, makes a pleasing preserve and also a pleasant drink. (Morris: *Prosopis* yields also a gum resembling gum arabic, and the wood of it is hard and durable.)

Satinwood.—A hard lemon-colored local variety of a well-known furniture wood, which emits a slight fragrance, takes a lustrous polish, and is a great favorite with cabinetmakers and furniture connoisseurs. The origin of the name is obvious, and the local species grows to a height of 30 feet, with a diameter of 2 feet. That it is inferior to its Indian congener few who view it worked up in articles of furniture will consider. It is plentiful in British Honduras.

Beewood.

PALMETTOS, CALLED HERE "PIMENTOS."

The Salt-water Pimento (*Bactris* sp.).—Much used in staking wharves, resisting well the action of water, 40 feet by 4 inches diameter. Blossom used to stuff pillows, cushions, etc. The palmetto is plentiful and much used locally.

The silver pimento is covered with long spiky thorns. Tree grows 20 feet high by 3 to 4 inches diameter. Wood tough, and used in house building.

WITHERS, OR LIANAS.

Locally known as "Tie-ties," and very useful to the woodmen and hunters, often supplying the place of rope and string. These parasites climb the tallest trees, and hang in graceful festoons or drop perpendicularly from the branches of their supporters. They vary in thickness from less than that of a little finger to that of the thickest part of a man's thigh, and are frequently armed with formidable thorns.

Water Tie-Tie.—So called from the circumstance that in the driest weather the thirsty traveler, if he is experienced in woodcraft, can obtain water from it by rapidly cutting off a section of the parasite by two quick cuts with his machete, and holding the section perpendicularly.

Chew-Stick Tie-Tie.—Twigs of this vine are used by the natives of all the races in the colony as a substitute for the tooth-brush and powder of more highly advanced countries. It is also used in place of yeast to start fermentation in making ginger and spruce beer, etc.

The Pine (*Pinus cubensis*).—It is estimated that about one-third of the area of British Honduras at present known is composed of pine-ridge country.

The chief plant of the pine ridges of the colony. The timber is used only to a small extent, locally, for building purposes, owing, it is said, to the difficulty experienced in sawing it. The wood is heavy, and if seasoned properly might be very durable. For railway sleepers, the pine wood should prove most valuable; and if sawmills were provided, much timber now imported could be supplied from the native woods, and large quantities of pine might be profitably exported.

GUATEMALA.

NATIVE WOODS.

The principal woods of this country are red cedar, mahogany, cypress, and a pine used for framing purposes, somewhat similar to the Oregon pine, but vastly inferior.

KINDS OF LUMBER USED.

The principal woods imported are California redwood, for finishing purposes, and Oregon pine, for framing and flooring.

IMPORTS OF LUMBER.

There is no lumber imported from any other country except the United States, the amount of lumber from there being over 2,500,000 feet per annum.

DUTIES AND PRICES.

There is no import duty on lumber.

The prices of lumber vary from \$90 to \$120 (Guatemala silver*) per 1,000 feet at the present time, according to the rates of freight, which fluctuate more or less on account of competition.

CLIMATE.

The climate of Guatemala is as a rule salubrious. It is very warm upon the coast, but becomes much cooler in proportion to the altitude, and on the table lands of the city of Guatemala the climate may be described as being very even.

GENERAL BUILDING.

As regards shipbuilding, there is none. There is some railroad building going on in the Republic, a line being in course of construction from Puerto Barrios, on the gulf side, to the city of Guatemala.

EXTENSION OF LUMBER TRADE.

Referring to the methods to be pursued to extend the lumber trade of the United States with this Republic, I desire to state that the very high rate of exchange, high freights, exorbitant port charges in the shape of landing and pier charges, customs duties, etc., are very much against any increase of this trade.

D. LYNCH PRINGLE,
Consul-General.

GUATEMALA, *January 4, 1894.*

* The Guatemala dollar (peso) was valued at 51.6 cents by the U. S. Treasury on January 1, 1894.

SALVADOR.

NATIVE WOODS.

The native woods are as follows: Balsam, from which the balsam of Peru is obtained, and which is wholly a Salvadorean product; cahoba (mahogany); red cedar; ceiba, a 5-leaved silk-cotton tree; cola de pava, an inferior kind of volador; conocaste, a very large hard-wood tree, used for railroad ties, flooring, etc.; granadillo, brittle and speckled, worked mainly into canes, etc.; guachipilin, a solid, strong wood, used for ships; *lignum vitæ*; laurel, different from ours, in the bark it resembles our oak, it is springy and easy to work; mora, a fustic; madre cacao, a durable wood, which petrifies in damp ground; nispero (the medlar tree); nogal (the walnut); pino, the common and pitch pine; pochote, a species of cedar with thorny bark; quebracho (break-ax), so called from its hardness, used for fences, etc.; quita calzon (trousers-tearer), used for construction; roble, an inferior kind of oak; ron ron, resembles the guachipilin, but is rougher; tatascame, called the low climate tree, grows in great altitudes, and is used for beams, etc.; varillo, a hard, fibrous, dense-grained wood, good for building timber; volador has a white bark, but is not a birch, used in the manufacture of primitive cart wheels; zapotillo, the sapota tree; ebano (ebony), very scarce; copinol, a yellow, strong wood, out of which the native sugar-cane mills are made.

In addition to the foregoing, there are the tropical fruit trees and, chief of all, the coffee trees, from which, however, nothing is made in the shape of lumber, except walking canes and some other small articles. Some of the foregoing woods are known under different names in the adjoining countries.

KINDS OF LUMBER USED.

The kinds of lumber used and preferred are:

Native.—Cedro, conacaste, cahoba, pochote, guachipilin, and laurel.

Foreign.—Oregon pine and California redwood, and spruce (ceiling) from Canada, imported by way of Europe.

IMPORTS OF LUMBER.

The quantity of lumber imported is about 700,000 feet from the United States (California) and about 50,000 feet from Canada (via Europe), though it varies greatly from year to year. Our trade with Salvador has largely increased within the last two years.

This republic has an area of only about 9,600 square miles, while its population is 700,000, or about 85 to the square mile, which is twenty times as dense as that of any other of the Central American States. This makes timber land very scarce, and what little there is of it is

often inaccessible, because of the lack of roads, so that it is generally cheaper to import lumber than to buy it here. There exists, however, some prejudice against our lumber on the ground that it can not withstand this climate, but this prejudice is unwarranted and is passing away.

DUTIES AND PRICES.

There are nominally no import duties laid upon lumber, but by an order of the president, recently issued, a "loan" of 25 cents in gold is collected on every 100 pounds. I am endeavoring to have this order revoked.

Lumber is worth in the country, at the place where it is sawed, about 80 pesos (\$37.20) per 1,000, taking cedar for a basis, and by the time it reaches the markets of the principal towns, with the present facilities of transportation, from 100 (\$46.50) to 150 pesos (\$69.80) per 1,000. American lumber can be laid down here, without the profit, for 80 pesos* (\$37.20) rough to 100 pesos (\$46.50) finished.

CLIMATE.

The climate of Salvador is tropical, but on the mountains and plateaus, upwards of 1,500 feet above the sea level, it is healthful and agreeable. From that height down toward the valleys of the interior, or toward the coast it becomes hotter and correspondingly unhealthful, particularly in the beginning and toward the close of the rainy season (May and October).

GENERAL BUILDING.

In the principal towns, in the time of peace, there is always building going on, although not to a large extent. The houses are, however, all of wood, owing to the frequency of earthquakes. No shipbuilding is carried on, except the repairing of small boats or launches, which are brought whole or in pieces from the United States. The railroads in course of construction are those of La Ceiba-Santa Tecla, 6 miles, and the Ateos-Santa Ana line, 40 miles. These are progressing slowly. Two new lines are proposed, one from La Union to San Miguel, and the other from La Libertad to San Salvador, each about 35 miles long. The Government is building a custom-house, hospital, and barracks at Acajutla. A California company has a contract (\$160,000 in gold) to construct a bridge across the Lempa River.

EXTENSION OF LUMBER TRADE.

So long as Americans study the wants of this country and fulfill them, so long can they contest the lumber trade here. The natives do

*The peso was worth, according to U. S. Treasury valuation, 46.5 cents on April 1, 1894.

not know how to assort, care little how they season the lumber, and it is almost impossible to get from them good dimensions. The one thing to be feared by us is the reinstatement of exorbitant freight rates.

ALEXANDER L. POLLOCK,

Consul.

SAN SALVADOR, March 5, 1894.

SOUTH AMERICA.

ARGENTINE REPUBLIC.

NATIVE WOODS.

In regard to the native woods of the Argentine Republic, I have to state that I have already furnished the Department with a full and detailed report. It was published in Vol. x, No. 34, p. 849, of Consular Reports. It not only gives the distribution of the forests of the country from Tierra del Fuego northward to the region of the tropics (latitude 20° S., longitude 58° W.), but it describes the peculiarities and uses of the various woods, including the belts on the eastern slopes of the Andes, the subtropical trees of Salta and Oran, and the immense timber resources of the Gran Chaco, Misiones, and the Argentine Mesopotamia, together with the estimate of the future lumber trade of the Argentine Republic. The statements and descriptions of trees in that report are as applicable and apposite to-day as when they were written, and they include the specific gravity of the most important trees; so that, instead of rewriting the facts of that report, I suggest that it be made a supplementary report hereto,* as containing matters of considerable interest to those who are now seeking information on these subjects.

The number of species of trees in the Argentine Republic is stated to exceed 500, though of course many of these are mere shrubs or arborets. Of the more important woods, over 100 species were exhibited at the recent Columbian Exposition at Chicago, and these exhibits, being sections or blocks sawed from the trunks, and in most cases polished, have been presented to the Philadelphia Industrial Exhibition, where they can now be seen in all their marvelous beauty; and I presume the catalogue which accompanies them includes full descriptions.

Of those native woods which have, up to the present time, been more generally utilized either for constructions or for cabinet work or industrial purposes, the following are the most important:

Algarrobo.—The zone of this useful tree is very extensive, since it embraces the following provinces and territories: Corrientes, Santa Fé,

* The report referred to will be found immediately following this report.

Catamarca, Cordoba, Jujuy, Salta, Mendoza, San Luis, Rioja, Tucuman, Entre Rios, Santiago del Estero, Chaco, Formosa, and Pampa Central. Its varieties are the white, the yellow, the black, the red, the gray, and the violet. Its size differs according to the variety, its height being from 5 to 12 meters (16.4 to 37 feet), and its diameter from 12 inches to 3 meters (9.76 feet). Its uses are varied and important, being used greatly in carpentry work, in the turning lathe, in cabinet work, in shipbuilding, etc. Its fruit constitutes an important part of the food of the poorer classes in the interior of the Republic. It is also fed to cattle, and they rapidly grow fat from its consumption. A drink called *la aloja* is likewise prepared from it, which is very intoxicating. The outside bark is employed for dyeing purposes, giving a bright red color. The wood resists the action of sun and water without cracking, and with the application of a little oil, is almost indestructible.

Red quebracho.—This valuable tree is found in the extensive zone formed by the following provinces and territories: Salta, Santiago del Estero, Cordoba, Santa Fé, Corrientes, Chaco, Formosa, etc. It grows to a height of 15 meters (49.25 feet), with a diameter of $1\frac{1}{2}$ meters (4.923 feet). The color of the wood is very dark red. Its uses are various and valuable. As sleepers or ties for railway tracks, it is preferred to all other known woods, and the railways of the country, with the exception of those which have iron sleepers, are constructed with this class of timber. It also possesses very powerful tanning properties, and for that purpose it is employed in all the tanneries of this part of the Argentine Republic, the amount employed at present reaching 50,000 tons per annum. For this purpose it is also exported to Europe in great quantities. In the form of posts for fences it is also greatly employed. It is also used for turners' work, and for columns, beams, heavy bridge timbers, etc. It is used everywhere in the country, both on account of its hardness and its durability. It is likewise susceptible of an exquisite polish, and is extensively used for cabinet work, for doors, window sills, stairs, etc.

White quebracho.—This variety, also greatly appreciated, is found in the following provinces and territories: Salta, Catamarca, Santiago del Estero, Santa Fé, San Luis, Cordoba, Rioja, Tucuman, Corrientes, Chaco, and Formosa. It grows to about the same proportions as the red quebracho. The color is a yellowish white. It is employed for various purposes, such as shoe lasts, carriage and cart spokes, hubs of wheels, carriage and cart beds; also in all kinds of turners' work, in all which works 4,000 or 5,000 tons are annually consumed in this city.

Cedar.—This valuable wood is principally found in the territory of Misiones, though to some extent cedar forests exist in parts of the provinces of Salta, Jujuy, Tucuman, Corrientes, and Catamarca. The trees reach to a height of 15 to 28 meters (49.21 to 91.86 feet), with a diameter of 1 meter (3.94 feet). Its color is bright red. Owing to the easier and cheaper transportation by means of the Parana River,

nearly all that is used here and all that is shipped abroad is brought down from Misiones. Lately considerable of this wood has been sent to the United States. It is employed here in the construction of doors, windows, lattice work, wardrobes, counters, etc., and is greatly appreciated.

Nandubay.—The forests of this valuable timber tree are mostly in Entre Rios, Santa Fé, Cordoba, San Luis, Corrientes, and the territories of the Chaco and Formosa. Its great use is for posts for wire fencing, owing to its great specific gravity and its durability.

Cibil.—The Cibil is found in the following provinces and territories: Jujuy, Salta, Tucuman, Catamarca, Corrientes, Chaco, Misiones, and Formosa. There are three varieties, the white, the red, and the black. It grows to a height of 20 meters (65.62 feet), and its diameter is little less than a meter for the largest trees. In the provinces the bark is used for tanning purposes, and its wood is employed as beams, bridge timbers, and for domestic purposes. It is rich in rubber gum, but no efforts have yet been made to utilize it.

Gayaibi.—This tree is found in the zone formed by the province of Corrientes and the territories of Formosa, Chaco, and Misiones. The varieties are the white, the gray, and the black. It attains to a height of 12 meters (39.37 feet), and has a diameter of one-half meter (19.68 inches). It is greatly esteemed by the natives. It is used for tool handles, and also for oars, masts for small vessels, cooperage, cabinet work, etc. It is flexible and yet very strong.

Laurel.—Laurel is found in the following provinces and territories: Jujuy, Salta, Tucuman, Corrientes, Catamarca, Chaco, Formosa, and Misiones, and presents three varieties—the white, the yellow, and the black. It reaches a height of from 10 to 20 meters (32.81 to 65.62 feet), and its diameter ranges from a quarter to three quarters of a meter (9.84 inches to 2.46 feet). It has exquisite veins running through the wood, and quite competes with walnut. It is extensively used for cabinetwork; also, owing to its great strength, for naval construction, and for the wood parts of agricultural machinery.

Walnut.—The walnut (*nogal*) is found in the zone formed by the following provinces: Jujuy, Salta, Tucuman, Mendoza, Cordoba, and Rioja. There are two varieties—the black, probably originally imported into the country, and the native, or white, which is a very light brown color. It is used in the interior for cabinetwork.

Rosewood.—This fine wood (*palo de rosa*) grows only in the territory of Misiones. It reaches a height of 15 to 20 meters (49.21 to 65.62 feet). It is the usual rosewood of commerce, takes an exquisite polish, and is principally used for cabinetwork and furniture. Very little, however, comes to this market, as the foreign variety can be procured more readily and much more cheaply.

Mahogany.—This valuable wood (*jacarandá*) is found only in the far northeastern part of the country, and principally in the territories of the

Chaco and Formosa. It grows to a height of 5 meters (16.41 feet), and its diameter is about 18 inches. Owing to its scarcity, it is not greatly used here, the imported article taking its place in this part of the country.

Tipa.—This tree grows principally in the following provinces and territories: Jujuy, Salta, Tucuman, Corrientes, Chaco, and Formosa. There are three varieties—the white, the red, and the yellow. The trees grow to a height of 15 to 25 meters (49.21 to 82.02 feet), and it attains to a meter (39.37 inches) in diameter. It is employed for various purposes by carpenters, and in the fabrication of yokes, plows, and the handles of tools and agricultural instruments. There is quite a demand for it also for cabinetwork, as it takes a beautiful polish.

Palo blanco.—This tree, whitewood, as it is called, is found in the following provinces and territories: Jujuy, Salta, Tucuman, Santa Fé, Corrientes, Chaco, Formosa, and Misiones. There are eight varieties, according to slight differences of color. Its height ranges, according to the variety, from 3 to 15 meters (9.85 to 49.21 feet), and its diameter is only from 10 to 60 centimeters (3.94 to 23.62 inches). It is used for a variety of purposes, and is best known in turners' work and the wood of iron machinery; also, for chairs and fine furniture. Its grain is very compact, and varnish produces upon it a beautiful effect.

Palo amarillo.—This tree, yellowwood, as its name signifies, is found in Corrientes, Santa Fé, Tucuman, Salta, Jujuy, Catamarca, Chaco, and Misiones. It attains to a height of 12 meters (39.37 feet), with a diameter of half a meter (19.68 inches). It is variously employed in turners', carpenters', and cabinet makers' work, and is much appreciated.

Palo moro.—This is the Argentine mulberry, and is found in the following provinces and territories: Salta, Corrientes, Misiones, Chaco, and Formosa. Its height varies from 10 to 20 meters (32.81 to 65.62 feet), and its diameter from 50 to 75 centimeters (19.68 to 27.56 inches). The color of the wood is bright yellow. It has a fine, compact grain, beautifully veined, and, when varnished, produces fine effects when used in cabinetwork.

Viraró.—This wood is embraced in the zone which includes the provinces of Corrientes, Catamarca, Jujuy, and Tucuman, and the territory of the Chaco. Its height varies from 14 to 25 meters (45.10 to 82.02 feet), and its diameter from 60 to 75 centimeters (23.62 to 27.56 inches). Its color is a very dark brown. It is employed in carpentry and in wagon and carriage work. It is not very abundant, and it brings high prices in the market.

Calden.—This is found in the provinces of Entre Rios, Corrientes, Cordoba, and San Luis, and the territory of the Central Pampa. It reaches a height of only 3 to 12 meters (9.84 to 39.37 feet), and a diameter of 30 to 70 centimeters (11.81 to 27.56 inches). Its color is bright red. It is a useful wood, and is not only employed in carpentry but its

bark is used for tanning purposes and its chips for dyestuffs. It is also used for fencing and for railroad fuel.

Tatané.—The zone of this tree comprehends the provinces of Salta, Jujuy, Tucuman, Corrientes, and Santa Fé, and the territories of Chaco, Misiones, and Formosa. Its height varies from 10 to 16 meters (32.81 to 51.66 feet), and its diameter from 20 to 50 centimeters (7.87 to 19.68 inches). Its color is a golden yellow. It is employed in carpentry, cabinetwork, and turners' work in the places where it grows. But little of it reaches Buenos Ayres.

Virapitá.—This tree is found in the following provinces, to wit: Santa Fé, Corrientes, Chaco, Formosa, and Misiones. Its height is from 16 to 20 meters (51.66 to 65.62 feet), and its diameter from 20 to 40 centimeters (7.87 to 15.75 inches). Its color is a silver-gray. It is used in carpentry work, cabinetwork, and turners' work. It is especially sought after for axles and spokes for wagons and carriages; also for beams and sleepers, and its chips are made use of for dyestuff.

Pacará.—This tree is found in the zone formed by the following provinces and territories, to wit: Jujuy, Salta, Tucuman, Santa Fé, Corrientes, Chaco, Formosa, and Misiones. It attains to a height of from 10 to 20 meters (32.81 to 65.62 feet), and a diameter of from 1 to 2 meters (39.37 to 78.74 inches). The color is very dark red. It is used in carpentry work, and from its dimensions is admirably adapted for beams, joists, sleepers, etc. It also makes beautiful flooring, window frames, turners' work, and furniture.

Espina de corona.—This tree, the "crown thorn," is found in the province of Corrientes and in the territories of the Chaco, Misiones, and Formosa. It reaches a height of from 10 to 15 meters (32.81 to 49.21 feet), and a diameter of about 1 meter (39.37 inches). The color of the wood is yellowish gray. It is used in carpentry work, and especially for fine furniture.

Molle.—This fine tree, with its several varieties, is scattered through the following provinces and territories: Salta, Jujuy, Cordoba, Catamarca, Tucuman, San Luis, Mendoza, Corrientes, Pampa Central, Chaco, and Formosa. Its principal varieties are the white, the red, the black, the "del monte," the sweet, the violet, and the Peruvian. It varies in height from 4 to 10 meters (13.12 to 32.81 feet), and from 25 centimeters to 1 meter (9.84 to 39.37 inches) in diameter. Its color varies from a dark gray to a black brown. The tree has valuable turning properties. The wood is variously used. From the fruit of the "molle dulce" is made a liquor called *aloja*.

Guayacán.—This tree is found in the extensive zone formed by the following provinces and territories, to wit: Salta, Tucuman, Catamarca, Rioja, San Juan, Mendoza, San Luis, Santiago, Cordova, Corrientes, Chaco, and Formosa. There are 2 varieties. Its height varies from 4 to 15 meters (13.12 to 49.21 feet) and its diameter from 10 to 40 centimeters (3.93 to 15.75 inches). The color of the wood is black. For

turners' work, for moldings, and for veneering it is a magnificent wood. It is sought after for walking sticks. It is one of the hardest woods in the country and its endurance is wonderful.

Palma.—The palma is found in the following provinces and territories, viz, Cordova, Entre Ríos, San Luis, Santa Fé, Corrientes, Chaco, and Formosa. There are several varieties, the red, the white, and the black. It grows to a height of from 6 to 22 meters (19.68 to 72.18 feet) and has a diameter of from 25 to 30 centimeters (9.84 to 11.81 inches). The color varies from gray to gray black. In the Chaco and Corrientes the tree is greatly used, being employed for roofing of the "toldas," "ranches," and nearly all other rural constructions. It is also used for bridge flooring, for fences, for joists, and for telegraph posts. There are great forests of this tree along the Bernujo River, in the Chaco.

Urunday.—This tree is found in the following provinces and territories, viz: Salta, Jujuy, Catamarca, Corrientes, Misiones, Chaco, and Formosa. The varieties are the white, the black, and the curly. It grows to a height of from 15 to 20 meters (49.21 to 65.62 feet), with a diameter of about 1 meter (39.37 inches). Its color varies from a silver-gray to a gray black. It is used in the woodwork of all sorts of tools, for handles, for brushes, for moldings, etc. It is also employed for joists, beams, sleepers, posts, etc. It is hard and durable and is greatly esteemed in the country.

Lapacho.—This tree is principally found in Salta, Jujuy, Tucuman, and Misiones. The varieties are the yellow, the white, the red, the curly, and the black. Its height is from 15 to 30 meters (49.21 to 98.43 feet) and its color varies from a greenish gray to a gray black. It is used for the spokes of wheels, for which purpose it is claimed to be the best wood in the world. It is also a beautiful wood for cabinet-work, and is greatly used for turner's work and fencing; likewise for dyestuffs. It is regarded as one of the most valuable trees which grow in the Argentine forests, and there is a general demand for it.

Guayabo.—This tree is found in the zone formed by the following provinces and territories, viz: Santa Fé, Entre Ríos, Corrientes, Chaco, and Misiones. It grows to a height of 15 meters (49.21 feet) with a diameter which varies from 50 to 75 centimeters (19.68 to 29.53 inches). Its color is red, with veins of yellow and black. There is a variety also of a bright gray color. It is admirable for cabinetwork, for fine furniture, for turners' work, and for veneering. Its bark is used for tanning purposes. Its fruit is very aromatic and is used for jellies, deserts, etc.

Inga.—Forests of this tree are found in the following provinces and territories, viz: Entre Ríos, Santa Fé, Corrientes, Misiones, and Formosa. It presents two varieties, called the bitter and the sweet inga. The "bitter" attains to a height of 10 to 15 meters (32.81 to 49.21 feet), with a diameter of 40 to 75 centimeters (15.75 to 29.53 inches). The "sweet" reaches to a height of only 4 to 6 meters (13.12 to 19.78 feet) and a diameter of 20 centimeters (7.87 inches). The wood of the first-named

variety is brownish gray; of the second, greenish gray. It is used in turners' work. The fruit of the tree is edible.

Palo de lanza.—The "lance wood" embraces the zone formed by the following provinces and territories, viz: Solla, Santa Fe, Misiones, Chaco, and Formosa. It grows to a height of 15 meters (49.21 feet) with a diameter of 50 centimeters (19.68 inches). The color of the wood is a bright gray. It is used for turners' work, for chairs, for handles, etc.

Peteriby.—This tree grows principally in the provinces of Santa Fe and Corrientes and in the territories of Misiones and Chaco. Its height varies from 15 to 18 meters (49.21 to 58.22 feet), with a diameter of 30 to 50 centimeters (11.81 to 19.68 inches). The color is a bright brown, very similar to walnut. It is used for cabinetwork, for furniture and other carpentry work. It is also employed for beams, joists, etc.

Cheñar.—The zone of this tree is quite extensive, being found in greater or less quantities in all parts of the country; but especially in the following provinces and territories, viz: Cordoba, Jujuy, San Luis, Santa Fé, Tucuman, Santiago, Pampa Central, and the Chaco. It grows to a height of 5 or 6 meters (16.44 to 19.68 feet) with a diameter of 50 centimeters (19.68 inches). It is used in all kinds of carpentry work.

Palo ribera.—This tree, "river wood," is quite abundant in the territories of the Chaco and Formosa, and especially along the Bermijo River. It attains to a height of 12 to 18 meters (39.37 to 49.21 feet), a diameter of 50 to 80 centimeters (19.68 to 31.50 inches). It is not yet very well known in Buenos Ayres, as it is rather inaccessible to the woodchoppers. Its color is rather unique—dark cinnamon, with reddish veins. When polished it presents a magnificent surface, and, combined with other woods, in cabinetwork, produces beautiful effects. When better known, it will evidently be sought after.

Alamo blanco.—This is the white, or "aspen," poplar of the United States. It is found all over the Argentine Republic, and, as with us, it is used for all sorts of purposes. Being about the only light wood in the country, it is employed in carpentry work, for packing-boxes, for common furniture, for broom handles, and for many other purposes. It grows without any attention, and immense plantations are everywhere to be seen. It is especially used by *estancieros* for belts of timber around their habitations, to break the force of the wind and thus protect their flocks.

Alamo Carolina.—This is nothing more than our ordinary cottonwood, which grows with such wonderful luxuriance on the low banks and islands of the Mississippi River. It may be indigenous to this country, but I think the tree was imported from us by Dr. Sarmiento, when he was minister to the United States. On the prairies and pampas of the Argentine Republic, on account of its rapid growth, it is greatly appreciated, and is regarded as a much better wood, owing to its heavier body, than the white poplar. As it is easily worked, it is used for all sorts of carpentry purposes.

Willow.—This tree grows very generally all over the Republic, and especially along the water courses. It covers the islands of the Delta of the Panama River. It furnishes nearly all the firewood of the city of Buenos Ayres. Every three years it is cut for that purpose, and new trees spring up from the stumps. It is likewise used for common furniture, for turners' work, for wooden shoes, etc.; and as it flourishes with a rapid growth in the timberless regions of the country it is regarded as one of the most useful trees of the Republic.

SPECIES AND VARIETIES, AND THEIR EXPLOITATION.

I have thus, according to request, enumerated thirty-six different species of native trees, all indigenous to the Argentine Republic; and, as has been seen, some of these species have several distinct varieties, the whole number amounting to at least forty, so that really the above enumeration includes not less than seventy-six varieties of Argentine woods. The catalogue might be still further extended; for many other "unusual" varieties are known to exist, though I am not just now able to describe them.

It will be observed that many of these woods, not having yet been properly classified, still bear the names given them by the Guarani Indians or the early Spanish settlers. Likewise it will be borne in mind that it is only in the far western, northwestern, and northern portions of the country that the timber plantations of the Argentine Republic are to be found—in many cases over a thousand miles from tide water. The Atlantic side of Patagonia is a desert; the territory of the Pampa is in great part destitute of trees, and the Province of Buenos Ayres and the southern portion of that of Santa Fé are also in the natural state without other vegetation than the grasses, though of late years vast artificial plantations have been made in all directions through the interior. Furthermore, it is to be considered that all the woods I have enumerated above, except it may be the willow and the poplars, are what are called "hard" woods, whose specific gravity in almost all cases is greater than that of water.

With such classes of woods to deal with, and with the great forests of the country so far removed from the seaboard, especially from Buenos Ayres, which is the great receiving and distributing focus of the Argentine Republic, some idea may be entertained of the labor of getting the timber resources of the interior to market. Yet the exploitation of the timber trees of the upper provinces and territories, especially along the Parana and Paraguay rivers, has been going on with more or less persistency for a great many years; and the choppers and the sawyers, without government officials to molest or make them afraid, have used their privileges with so little care and consideration that in some parts of the interior, especially along the water courses, the havoc and wholesale destruction have been shameful. So little respect, indeed, was paid to the national forests that, a few years ago, the government

enacted a law prohibiting the cutting of timber on the public lands except by special permission which had to be paid for, and then the work was required to be done under special conditions. Though the timber thieves still get in their work in the remote places, there is now more system and somewhat more care displayed in getting out lumber.

NATIVE ESTIMATE OF ARGENTINE WOODS.

As showing the estimate which the more intelligent portion of the Argentine people place upon their forest riches, I translate the following from a recent issue of the Buenos Ayres *Nacion*:

Our national forests present a superabundant element of riches; and, if wise laws are made to protect their production, in a few years the Republic will be able to get along without importing foreign lumber and be prepared even to export all kinds which are suitable for city or rural constructions or as auxiliary to other important industries. Among the five hundred varieties which have been catalogued there are many woods of great value; and there is no object or use or necessity or industrial purpose which can not be supplied by some of the classes of these woods. At present, however, it must be confessed that these great forest riches are but slightly appreciated by the majority of our people. What a wonderful source of wealth they would be if they were the possession of some more enterprising nation! The greater part is of spontaneous growth and owes nothing to the hand of man, which from time immemorial has, on the contrary, done all it could to destroy what nature has provided for the country.

Science, reason, and common intelligence condemn the manner in which the forests of the nation have been exploited. Without entering into details, it is sufficient to say that the damage and destruction under the present system are greater to the country than the profits. Everybody sees the manner in which, despite the law on the subject, the natural forests are being ruined, but how few apply the remedy against the devastation which is going on.

THE SAWMILLS AND SAWYERS OF THE COUNTRY.

The number of sawmills in the country are now numbered by thousands, and they are quite generally distributed, not only along the shores of the upper rivers, but in the interior provinces. On this subject I translate from a recent number of the Buenos Ayres *Prensa* the following:

There is one industry in the Republic which at least can count on an extraordinary number of establishments of every magnitude, from the least with a single mule power (*movido por la perezosa mula*) to those of the largest dimensions, stocked with the very best machinery which the world affords. We refer to the sawmills of the country. There is no province or territory, whether in the north or the south, which does not count on a large number. It may be stated as a fact that the woods of the country furnish labor for a larger number of artisans and laborers than that of any other industry. In the Province of Santiago del Estero, no less than 5,000 workmen are employed in no less than 200 different establishments, most of them in the Sierras, getting out *quebracho* sleepers for railways, white *quebracho* beams for constructions, woods of other descriptions for cabinet work, and joists and scantlings and boards of other timbers, besides the large amount of fuel for the numerous railways of that vicinity. In the Province of Tucuman there is even a larger number of lumbermen and a larger number of establishments. In the Province of Cordova the working up of the *algoroba* forests sustains a still greater number of sawmills and employes,

which throw upon the market monthly millions of "breadths and lengths" (*Pierries y cabazales*) bedsteads, knees, square knees, and various other products of the algarroba and other hard-wood trees. The Province of Santa Fé, not only in the neighborhood of its cities, but in its various colonies, has a large number of sawmills and carpenters; and especially in that portion of its territory which adjoins the Gran Chaco, there is a large population whose principal occupation is working the red quebracho forests, as it is from this province that the greater part of the quebracho chip, used in Europe for dye woods, are obtained. In the province of Entre Rios, likewise, there is a considerable number of well established mills, besides a still larger number of moving circular sawmills, which are now penetrating to the very center of the immense forests of that part of the Republic, turning out all kinds of lumber and hard wood. And the same is the case in the Province of Corrientes, where there are extensive forests of quebracho and other choice timber. But in the territories of the Chaco, Formosa, and Misiones, the lumbermen and the sawmills are especially to be found. The amount of capital invested in the lumber trade, in those parts of the Republic, reaches to millions of dollars; and the establishments there are commensurate with the vast wealth of timber of the most valuable varieties, which are to be found there. The lumber business of the provinces of Salta, Jujuy, Rioja, Catamarca, San Luis, Mendoza, and San Juan, though of much less importance, owing to their distance from a marketable outlet, is yet very considerable, as all the lumber of every kind and description which they use is furnished by their own forests. Here in the city of Buenos Ayres, though the lumber and woods must all be transported here, there are thirty-nine sawmills and seven hundred and forty-three carpenter shops. Besides there are numerous similar establishments in the cities of La Plata, Chirileoy, Tigre, San Fernando, Bahia Blanca, San Nicolas, Campana, and other places.

THE LUMBER INDUSTRY.

I am not able to state—for no census has ever been taken—the total number of workmen and laborers engaged in the lumber industry of the Argentine Republic; but the following table, which has been prepared with considerable care, gives an approximation of the number of persons thus employed for the year 1892:

Place.	Number.	Place.	Number.
City of Buenos Ayres.....	12,000	Province of—	
Province of—		Jujuy.....	500
Buenos Ayres	8,000	Rioja.....	500
Santiago.....	5,000	San Luis.....	500
Cordova.....	5,000	Territories—	
Tucuman.....	4,000	Chaco.....	750
Santa Fé.....	5,000	Central.....	500
Entre Rios.....	3,000	Formosa.....	800
Corrientes.....	2,000	Misiones.....	750
Catamarca.....	1,000	Pampa.....	250
San Juan.....	1,000	Patagonia.....	250
Mendoza.....	1,000		
Salta.....	1,000	Total.....	50,800

ANNUAL LUMBER OUTPUT.

In regard to the output of the lumber industry in the interior provinces, it is not possible to give any figures. That there is an exchange of trade between the sawmills and the provincial centers of population, which in the course of the year amounts to several millions of dollars, is evident from the fact that all the houses, habitations, galpones, barns,

fences, corrals, and the ordinary furniture and carpentry work of the people are entirely constructed from timber of the native forests. While the cost of transportation, except it be along the great rivers, precludes the exportation of the native woods, the same reason prevents the use in the far interior of the soft woods of other countries. Buenos Ayres is, however, advantageously situated in this respect, since it is enabled not only to receive the valuable cabinet woods of the Chaco and Misiones by means of *chatas* and other river craft, but also, at moderate freights, the pines and spruces of North America. The quantity of hard woods which find a market here in Buenos Ayres is increasing every year, as the industries of the place find additional use for them. The receipts for 1892, according to the custom-house returns, were as follows:

Class of woods.	Quantity.	Value.
Hard wood:		
Logs..... number of pieces..	108, 208	\$324, 624
Slabs..... do.....	330, 074	42, 910
Sawed..... do.....	239, 634, 871	1, 198, 174
Cedar..... square meters..	1, 387, 930	1, 110, 834
Various cabinet woods..... do.....	254, 448	114, 501
Quebracho woods..... do.....	386, 755	193, 387
Nandubay:		
One-half posts..... number..	1, 577, 175	473, 152
Posts..... do.....	785, 544	392, 772
Quebracho blocks..... kilograms..	23, 416, 669	468, 333
Total		4, 318, 187

INDUSTRIAL ESTABLISHMENTS IN BUENOS AYRES.

These figures are for a year in which there was unusual depression in the industrial establishments of this city, and I am sure, with the return of the normal condition of business, the figures would double the value. But of course it is not merely the native woods which are worked in this city. The immense shipments of the soft woods from North America contribute materially to the total quantity used by the workers in wood in this vicinity. The latest statistics (1887) in regard to the number of such establishments in Buenos Ayres are:

Woodworking establishments.	Number.	Woodworking establishments.	Number.
Carpentry shops.....	651	Shoe lasts.....	32
Steam sawmills.....	36	Bird cages.....	5
Walking-stick, etc., manufactories.....	10	Mechanical carpentry shops.....	22
Trunks.....	16	Furniture factories.....	301
Wood-hemp shoes.....	62	Parasols and umbrellas.....	11
Billiards.....	6	Coopering establishments.....	14
Carriages and wagons.....	84	Turners' shops.....	28
Brushes.....	5		
Building establishments.....	57	Total	1, 373
Brooms.....	33		

Since the above date, the number of these various establishments has greatly increased, and there are now to be added to them a number of boat yards, where all classes of water craft, from whaleboats to large-sized steamers, are constructed and fitted out.

EXPORTS OF NATIVE WOODS.

In regard to exports of lumber from the country, there is as yet very little to be said. As we have seen, while the upper territories and provinces are an unbroken forest of primeval proportions, in which are to be found hundreds of varieties of hard woods, susceptible of the very finest polish and presenting the most exquisite colorings, yet the country is almost devoid of the soft woods of commerce. There are pines in the territory of Misiones and along the eastern slopes of the Cordilleras of Patagonia, but they are quite inaccessible to market. Years hence, with the development of the country, they may come to the front. At present the only woods which are shipped abroad are the hard woods of the upper Paraná. Owing to their specific gravity, it is impossible to float the logs, and so they are brought down in chutes or are loaded from the banks directly in sailing vessels bound for Europe. The first movement towards the export of Argentine woods was made in 1875. Since then the annual shipments to foreign markets have been:

Year.	Export value.	Year.	Export value.
1875.....	\$29, 171	1884.....	\$390, 848
1876.....	10, 541	1885.....	338, 022
1877.....	57, 090	1886.....	326, 623
1878.....	14, 943	1887.....	330, 214
1879.....	58, 793	1888.....	781, 793
1880.....	36, 403	1889.....	799, 257
1881.....	272, 613	1890.....	1, 413, 224
1882.....	222, 358	1891.....	2, 145, 510
1883.....	257, 887	1892.....	1, 066, 819

It is evident from these custom-house returns that the greater portion of the lumber and precious woods of the country are made use of here at home. The value of the forest exports for 1891 amounted to about 8 per cent of the total exports. In 1892 it amounted to about 4½ per cent of the total exports. The exports of these years embraced the following items:

Exports of lumber, woods, etc.	Value in—	
	1891.	1892.
Vegetable carbon	\$299, 484	\$257, 485
Cedar wood	72, 825	44, 892
Sleepers.....	173, 535	56, 964
Nandubay posts	4, 633	5, 862
Various woods.....	181, 152	27, 079
Nandubay half posts.....	110, 121	34, 917
Quebracho—		
Slabs	630, 419	87, 864
Blocks and chips	615, 209	529, 847
Not named.....	57, 827	21, 909
Total.....	2, 145, 505	1, 066, 819

All these shipments went to European ports, except a small portion of the cedar and of the quebracho, which was sent to the United States

as an experiment and to try the market. I do not think, however, the result of the ventures was at all successful.

Speaking in general in regard the business of exporting lumber and hard woods from the Argentine Republic, it may be said that it has not been profitable in the past, and it has to be managed on a different basis to reach to any great proportions in the future. The great drawback to a successful prosecution of the industry results from the fact, in the first place, that even the most accessible forests are so remote from tide water that the cost of freight is out of proportion to that for which the hard woods of Central America and portions of Brazil can be sent to market. It is true that, at certain seasons of high water ocean-going vessels can be loaded far up the Parana, and even Paraguay, and thus convey their cargoes, without breaking bulk, to their trans-Atlantic destination. But in many cases, the lumber has to be brought down in small craft, or *latas*, and reshipped, thus making another handling necessary. And in the second place the appliances for handling logs and heavy timber on the upper rivers are so primitive and the laborers so inefficient that the getting out of it is very expensive.

IMPORTS OF LUMBER.

As long as the people of this part of the Argentine Republic, for ordinary carpentry and building purposes, are able to procure the pines and spruces from North American ports with as little trouble and expense as they have been doing in the past, it is not probable that there will be very great attention paid to the heavy hard woods of this country. Of course the shipments of North American soft woods vary according to the demands of the trade. When everything is "booming" the requirements of the country are greater than when there is general stagnation in business. The crisis, which has been so severe for several years past, has been especially felt in house building, house furnishing, estancia fencing, and general construction; and the receipts of lumber from abroad, which reached their highest figures in 1889, have since then shown a great contraction.

The following table, which I have in great part compiled from the official returns, shows the value of the importations of lumber into the Argentine Republic since the year 1870, inclusive:

Year.	Value.	Year.	Value.
1870.....	\$2,352,701	1882.....	\$2,019,216
1871.....	1,702,403	1883.....	2,424,682
1872.....	2,341,012	1884.....	3,803,751
1873.....	3,257,545	1885.....	4,751,942
1874.....	2,932,114	1886.....	5,368,610
1875.....	2,071,974	1887.....	6,627,130
1876.....	621,497	1888.....	5,699,657
1877.....	1,058,904	1889.....	8,389,533
1878.....	617,647	1890.....	5,120,087
1879.....	1,187,732	1891.....	1,832,213
1880.....	1,080,897	1892.....	3,201,707
1881.....	1,663,634	1893.....	2,949,433

It is hardly necessary to state that a very large proportion of the lumber imported into the country comes from the United States. The returns of imports for 1893 by countries have not yet been published by the statistical office, but I give below those for 1892:

Importations of pine lumber for 1892.

Country.	Quantity.	Official value.
	<i>Sq. meters.</i>	
United States	6,683,846	\$2,788,521
Italy	5,261	2,151
Great Britain	141,788	59,814
Norway and Sweden	27,998	11,479
Uruguay	184,026	65,419
Country not named	75,131	21,818
Total	7,118,045	2,949,202

Importations of woods for 1892.

Country.	Quantity.	Official value.	Country.	Quantity.	Official value.
	<i>Square meters.</i>			<i>Square meters.</i>	
Walnut:			Cedar:		
Germany	2,982	\$2,982	Germany	10	\$4
Belgium	61,062	61,062	Brazil	192	63
United States	4,475	4,475	Paraguay	160,381	61,537
France	7,234	7,234	Total	160,583	61,604
Italy	2,461	2,461			
Countries not named	9	9	Other woods:		
Total	78,223	78,223	Germany	449	359
			Chile	19,066	7,217
Oak:			United States	12,227	9,770
Belgium	2,831	2,265	Paraguay	377,651	75,946
United States	11,360	9,088	Uruguay	18,610	7,769
Uruguay	183	164	Total	428,004	101,161
Total	14,374	11,517			

The total number of square feet of lumber imported into the Argentine Republic in 1892 was 7,799,229, of a total official value of \$3,201,707, gold.

The custom-house returns do not distinguish the different kinds of pine which are embraced in the above figures for 1892, and I have no means of finding out. For the year 1893, however, I observe from Norton's U. S. Shipping List that the pine shipments to the River Plate were as follows: 32,377,000 feet of white pine, 42,116,000 feet of spruce pine, 43,497,000 feet of pitch pine, and 972,000 feet of Oregon pine, and probably this is about the usual proportion of each.

DUTIES ON IMPORTED LUMBER.

All ad valorem duties on articles imported into the Argentine Republic are liquidated according to their values as fixed by a custom-house or valuation tariff. The duty on all lumber, no matter what may be the variety, is 25 per cent, except for unworked white pine or spruce,

in which case the duty is only 5 per cent. I quote from this tariff as follows:

Kind of lumber.	Official value.	Duty.
		<i>Per cent.</i>
Cedar square meter.....	\$0.30	25
Lapacho, quebracho, and urunday, etc. do.....	.20	25
White pine or spruce:		
Unworked do.....	.41	5
Worked do.....	.50	25
Hard pine and white poplar do.....	.45	25
Hard pine and white poplar, worked do.....	.58	25
Walnut do.....	1.00	25
Oak, maple, cherry, etc do.....	.80	25
Mahogany do.....	1.70	25
Pine and spruce, unworked, of less than 20 millimeters do.....	.50	25
Veneering of—		
Mahogany or walnut do.....	.13	25
Rosewood do.....	.70	25
Nandubay—		
Posts each.....	.45	25
Half posts do.....	.30	25
Pickets do.....	.13	25

It will be seen from this tariff that while the Canada white pine or spruce unworked pays a duty of only 5 per cent on a valuation of 41 cents per square meter, the hard pine of the United States is required to pay a duty of 25 per cent on a valuation of 45 cents per square meter, a discrimination which on its face appears very unjust to the shippers of lumber from the United States, and which has already created no little comment down here.

In the case of pine lumber there is allowed 6 per cent for breakage and rot; for other kinds of lumber in boards, 3 per cent, and for veneering, 5 per cent for breakage.

For unworked lumber, valued by the square meter, 25 millimeters are allowed, and for worked lumber 22 millimeters. In the case of veneering no allowance is made. For lumber which comes as "deck load," no allowance is made for its wet or damaged condition.

PRICES.

The prices in this market for imported lumber depend, of course, a good deal on the supply and demand at any given time. A large number of arrivals together or in quick succession very perceptibly influences the figures for which cargoes can be sold. The scale of prices at present, as given to me by Messrs. C. S. Roberts & Co., are as follows:

White Pine.—Deck load, \$36; No. 8, \$41 to \$42; good shippers, \$51 to \$52; selects, \$68 to \$69 gold per 100 square meters dispatched; six months' credit.

Spruce Pine.—\$26 to \$27 gold per 100 square meters dispatched; six months' credit.

Hard Pine.—\$41 gold per 100 square meters dispatched; six months' credit.

Oregon Pine.—\$28 to \$30 gold per 100 square meters dispatched; six months' credit.

Walnut.—\$195 gold per 100 square meters dispatched and delivered in buyer's yard; six months' credit.

Oak.—\$80 to \$95 gold per 100 square meters dispatched and delivered; six months' credit.

CLIMATE.

In so vast an extent of territory, with the varying levels of its surface, there is necessarily considerable variation in the climate. While the extreme portions of Patagonia reach to the Antarctic regions, with a corresponding depression of the temperature, in the northern parts of the Republic a perpetual summer reigns, without, however, the intense heat of the tropics. The climate of the central portion corresponds very nearly to that of southern Europe. The name of the capital is an eloquent testimony in favor of the climate in this part of the country. The pure, invigorating atmosphere produced such an impression on the first colonists or conquerors, under Mendoza, that in addition to the indispensable saint's name they affixed that of "Good Airs" (Santa Maria de Buenos Aires), a designation which all the pampa provinces fully deserve. This part of the Argentine Republic, however, is not a perpetual spring, much less a perpetual summer. The seasons here are quite clearly defined, and if the mercury seldom reaches even to the freezing point, it is none the less a fact that the bleak winds and cold rains of the winter months not only make heavy clothing and warm fires exceedingly desirable, but not unfrequently kill the fruit blooms of the peach and other fruit trees.

According to the meteorological reports of Dr. Tome, the distinguished American scientist in charge of the National Observatory at Cordova, the following is the mean monthly temperature of Buenos Ayres, the thermometer used being the centigrade, the readings of which can be reduced to those of the Fahrenheit by the usual formula, $F = \frac{9}{5}C + 32$. I also add the mean monthly readings of the early barometer in millimeters.

Month.	Fahrenheit.	Centigrade.	Barometer.
	<i>Degrees.</i>	<i>Degrees.</i>	<i>Millimeters.</i>
January.....	75.63	24.24	758.37
February.....	74.19	23.44	758.14
March.....	70.25	21.25	759.92
April.....	62.43	16.94	761.99
May.....	56.62	13.68	761.81
June.....	52.05	11.14	762.73
July.....	49.68	9.82	765.42
August.....	53.15	11.75	762.69
September.....	56.64	13.69	763.04
October.....	62.35	16.85	761.31
November.....	68.36	20.20	760.25
December.....	73.29	22.94	757.88
Mean.....	62.80	17.11	761.10
Maximum.....	106.04	37.80	780.00
Minimum.....	36.60	-2.00	742.00

These computations were made from observations taken in 1880, but they are equally good at present, owing to the very slight variations in the daily readings for any year.

In regard to the seasons, it will be borne in mind that, being south of the equator, they are exactly opposite to those of the United States, viz: Spring, September, October, November; summer, December, January, and February; autumn, March, April, and May; winter, June, July, and August. The seasons, however, run into each other so imperceptibly that in reality the year here may be divided into two seasons; the warm, which extends from October to April, inclusive, i. e., seven months; and the cool, which extends from May to September, inclusive, i. e., five months.

GENERAL BUILDING.

In regard to the construction of the buildings of this country, the houses, in the early days of its history, met the necessities of the people in a very primitive way. No particular consideration was given to the modern idea of comfort. Very little wood entered into their construction. Mud bricks and a very poor article of mortar were the principal ingredients, and the style was the old-fashioned one-story, shambling house, with a flat, or "azotea," roof, also of brick, constructed after the manner of the Moorish dwellings of early Spain, with a court in the center. As this was before the era of coal shipments from England, and there was little wood in the country nearer than the Gran Chaco, they made no fireplaces or other provision in the houses for fires; and the inhabitants, in a comfortless way, when the winter was upon them, huddled around an iron *brasera* of smouldering charcoal set in the middle of the room, or went without fire altogether. But with the opening of the coal trade with Great Britain, and the utilization of the upper river forests, there has gradually been a great change in the architecture and conveniences of the houses of Buenos Ayres, and during these late years, in their general appearance, in their internal arrangements, and in the use of fireplaces, grates, stoves, and furnaces the houses remind one of the dwellings and business blocks of the cities of the United States.

As to the extent to which general building is carried on in Buenos Ayres at the present time, it may be said that this branch of industry is at present somewhat depressed. There is no activity in house building, ship-building or railway-building. In all these interests the country for the last three or four years has been so severely affected by the financial crisis, which has not only caused the Government to default, but many business men to go into bankruptcy, that there has been a decided let-up in all classes of construction. Indeed, during the "boom" which preceded the crisis, building of all kinds was so greatly overdone that that branch of business was among the first to feel the effects of the stringency.

Railway construction is quite at a standstill. Last year only 639 kilometers of track were laid, the total number of kilometers in the whole country now being 12,920 (8,028 miles), representing a total capital of \$429,582,917.

Shipbuilding never has amounted to much in the River Plate, and the few river craft are of no great significance. Still there are several shipyards where extensive repairing, refitting, and refurnishing are done, and these always seem to have "plenty to do."

Housebuilding, especially here in Buenos Ayres, during the years from 1886 to 1890, had a great development along with the great activity in real estate. The number of transfers of real estate in 1890 in this city was 9,340, embracing 9,700,971 square meters, for the aggregate sum of \$80,862,716 paper currency, equal to about \$25,000,000 gold. For some unexplained reason the annual municipal statistics do not state the number of building permits or buildings erected each year, and hence I am not able to give any figures on the subject; but a very large proportion of the transfers each year are made with a view to the erection of buildings upon the lots. There has been no census of Buenos Ayres since 1887, and at that time the following were the building statistics of this city:

Brick houses.....	24,065
Wooden houses	2,084
Mixed houses	7,613
Public edifices	193
Houses in course of construction	489
Total in 1887	34,444

Assuming that 500 is the average number of houses annually erected, it would appear that the present number of distinct habitations in Buenos Ayres is about 37,500; and as it is claimed that the number of dwellers to a house in this city, including *conventillos* or constructions for the poor, is 15, it follows that the present population of Buenos Ayres is 562,500. The number claimed by the municipality is 582,000.

House-building, however, as we have seen, is not the only use to which North American and native lumber and woods is applied. A large quantity is consumed in paling and picket fencing; in the manufacture of chairs and other furniture, now made here in the styles of France, England, and the United States, but which, owing to the increased duties recently placed upon foreign furniture, it is no longer possible to import without a loss; in the manufacture of dry goods and packing boxes; in the manufacture of barrels, hogsheads, and other coopers' work, though there is still a very large trade in American "shooks;" manufacture of shoe lasts; of all sorts of turners' work; of carriages, carts, and wagons; of boats and naval construction and repairs; and for a thousand other objects, for which with the growth of manufactures in this city the multiplied necessities of life call into requisition the different varieties of wood and lumber.

IMPORTERS OF AMERICAN LUMBER.

In concluding this report, it may be well to state that the most important and best known importers of North American lumber and dealers in native woods are the following:

C. S. Roberts & Co., Calle San Martin, No. 76.
 Thomas Drysdale & Co., Calle Moreno, No. 438.
 J. & J. Drysdale & Co., Calle Peru, No. 440.
 Shaw Bros., Calle Piedras, No. 76.
 J. Shaw & Sons, Calle Venezuela, No. 860.
 George Bell & Sons, Calle Defensa, No. 649
 C. S. Bowers & Co., Calle Cuyo, No. 472.
 Lahusen & Co., Calle Peru, No. 23.
 Shaw, Miller & Co., Calle Alsena, No. 471.
 Warden & Co., Calle Belgrano, No. 573.

And the list might be further extended. All necessary information in regard to the methods pursued here in the lumber trade, or in regard to the disposition of cargoes will be readily furnished to the lumber dealers and exporters of the United States upon application by letter to any of the above-named houses.

E. L. BAKER,
Consul.

BUENOS AYRES, *March 3, 1894.*

SUPPLEMENTAL REPORT.

THE WOODS OF THE ARGENTINE REPUBLIC.*

BOTANY OF THE COUNTRY.

As yet there has been no complete scientific exploration of the vegetation of this country; but the subject has occupied and is still occupying the attention of a number of well known scientists, some of whom are making their investigations under the special patronage of the National Government. Of course the fruit of their labors in regions so remote and so wild can not be gathered in a day, but already no little headway has been made in the botanical survey of the country, and most important results, not only in the collection of specimens, but in the classification of trees, have been obtained. It appears that the first systematic study of the vegetation of the Argentine Republic was made by Dr. Lorentz, who was called from Germany to fill the chair of botany in the University of Cordova. He was succeeded in the same chair by Dr. Hieronymus, also of Germany, who has made the most complete collection of woods in the country that is to be found anywhere, and who informs me that he has now in press a report of the results of his studies. This, of course, is not yet accessible, and hence I am not able to profit by his labors. The information which I have embodied in this report has been obtained from a "report on the vegetation of the Argentine Republic," by Dr. Lorentz; from the late volumes of M. Martin de Moussy, in French, on the "geographical and statistical description of the Argentine Republic;" from a work on "the Argentine Republic," in German, by Sr. Ricardo Nap, formerly in charge of the Argentine national statistical office, and from information which I have derived directly from Prof. A. P.

* From Consular Reports No. 34, 1883.

Burns, an American now resident in this country and in charge of the national powder establishment at Rio Cuarto, all of which sources of information are supplemented by my own observations in various excursions through the different parts of the country. It is proper, however, to state that there are still many portions of the Republic, especially the formations of the Gran Chaco and Misiones, about whose flora very little is yet scientifically known, while much of our knowledge of other parts of the country may be only superficial.

DISTRIBUTION OF FORESTS.

I would premise by stating that the distribution of forests in the Argentine Republic is very unequal. While some parts are thickly covered with timber, other portions, though abounding in rich and succulent grasses, are entirely devoid of trees, corresponding in this respect to our Western plains. Other parts, again, are almost without soil, and sterile, exhibiting only the scantiest manifestations of a stunted vegetation, while still others are covered to a more or less extent with boskets of low shrubs or brushwood. Extending, however, as the Argentine Republic does, from Cape Horn on the southern extremity of Terra del Fuego (latitude 56° south, longitude 67° west), almost within the antarctic circle, to the regions of the tropics (latitude 20° south, longitude 58° west), the great diversity of vegetation in its 45,392 square geographical leagues of area can well be understood. On this account the surface of the country has been divided by some naturalists * into not less than nine different formations, corresponding to the species of flora which they afford, and to the physiognomy of their vegetation in general. While noticing these distinct groups it is not, however, necessary to do more than give a very general description of them, since some of them contain nothing which can be dignified with the name of timber. For the purposes of this sketch, which has nothing to do with the classification of the flora of the country, much less with their structural composition or physiological peculiarities, but simply with "the products of the forests," i. e., their economic uses, as affording timbers, fiber, dyestuffs, tanning materials, etc., it is much more convenient to follow the geographical divisions which naturally present themselves, since thus their localities can be better identified and understood.

TERRA DEL FUEGO AND THE ADJACENT ISLANDS.

I begin, then, at the southern extremity of the continent, which includes Terra del Fuego and the numerous adjacent islands. In regard to this region, which has never been fully explored, I am able to present but few data, for the reason that so little is yet known as to its flora. It is, however, reported to be most densely covered with forests, composed almost entirely of beechwood (*Fagus betuloides*) and winter's bark. This beech keeps its leaves all the year, having a foliage of a peculiar brownish-green color, with a tinge of yellow. Prof. Darwin, who visited Terra del Fuego in 1832,† says it is almost impossible to find an acre of land not covered by the densest forests. He described the country as a mountainous land, partly submerged by the sea, so that deep inlets and bays occupy the place where valleys should exist. The trees, which covered the mountain sides from the very water's edge, reach to an elevation of between 1,000 and 1,500 feet, and are succeeded

* Prof. Lorentz divides the vegetation of the Argentine Republic into the following formations: (1) Formation of the Puna; (2) subtropical formation; (3) formation of the Chaco; (4) monte formation; (5) formation of the Pampa; (6) Patagonian formation; (7) formation of antarctic forests; (8) Paraguayan formation, and (9) Mesopotamian formation.

† A Naturalist's Voyage Around the World, by Charles Darwin, M. A., page 210, *et seq.*

by a band of peat with minute alpine plants, and this again is succeeded by the line of perpetual snow, which, in the Straits of Magellan, descends to between 3,000 and 4,000 feet. There is but little level land, and where this happens to be the case, the surface is in many places a mere bed of swampy peat. Indeed, even within the forest, the ground is concealed by a mass of slowly putrefying vegetable matter, which, being soaked with water, yields to the foot.* On the eastern side, however, there are some open meadows fit for pasturage or cultivation.

FORESTS NORTH OF THE STRAITS OF MAGELLAN.

These magnificent forests extend northward from the Straits of Magellan along the Andes on both slopes to about 34° of south latitude. In fact it is not yet known definitely where they do terminate on the eastern or Patagonian slopes. Besides the almost impenetrable forests of beech trees, there is a thick underwood, consisting of a species of *Berberis* and other antarctic species, and the same thick layer of turf, which is so universal in Terra del Fuego. Indeed, excepting the timber and the turf, the vegetable kingdom produces here no useful objects whatever. Nevertheless, in the hands of an energetic and laborious people, these forests of beeches could be exploited and made a source of untold wealth; but civilization has not yet penetrated these primitive regions.

EASTERN SLOPES OF THE SOUTHERN ANDES.

Further north, along these eastern slopes of the Cordilleras, in the neighborhood of the sources of the Rio Negro, there are forests of stately pines and wild apple trees, and it is here that the Patagonian Indians have their permanent settlement, in the midst of wide, open plains extending out from the sierras, well watered and clothed in most luxuriant grasses. Capt. Musters, who penetrated these forests in 1869, speaks of them as "uniformly dense;" the trunks of the pine trees reaching a height of 60 to 100 feet, and entirely bare of branches for two-thirds of their height.† His descriptions, however, of the woods and rivers are too superficial to give us a clear idea of the flora of these regions. The Argentine Government is now exploring all the country along the eastern slopes of the Andes, with a view to opening it up to settlement and improvement. A report on the vegetation is now in press and will soon be issued.

*Prof. Darwin describes an ascent he made of one of the mountains of this country, from which I take the following: "I was anxious to reach the summit of Bank's Mountain to collect alpine plants, for flowers in the lower part are few in number. We followed a water course till it dwindled away, and we were then compelled to crawl blindly among the trees. These, from the effects of the elevation and of the impetuous winds, were low, thick, and crooked. At length we reached that which from a distance appeared like a carpet of fine green turf, but which to our vexation turned out to be a compact mass of little beech trees about 4 or 5 feet high. They were as thick together as box in the border of a garden, and we were obliged to struggle over the flat but treacherous surface. After a little more trouble we gained the peat and then the bare slate rock. We obtained a wide view over the surrounding country; to the north a swampy moorland extended, but to the south we had a scene of savage magnificence well becoming Terra del Fuego. There was a degree of mysterious grandeur in mountain behind mountain, with the deep, intervening valleys, all covered with one thick mass of forest. The atmosphere, likewise, in this climate, where gale succeeds gale, with hail, rain, and sleet, seems blacker than anywhere else. In the Straits of Magellan, looking due southward from Port Famine, the distant channels between the mountains appeared from their gloominess to lead beyond the confines of the earth."

†See At Home with the Patagonians, by C. G. Musters, pages 113 to 160.

FORESTS OF THE CORDILLERAS OF PATAGONIA.

The line which separates the plains of Patagonia from this fertile mountain region, with its wealth of timber, is very sharply defined. Beginning at Cape Negro, Magellan Straits, at latitude 53° south and longitude 75° 50' west, it runs west-north-west to the northeast extremity of Otway Water, following the channel of Fitzroy Passage and the northern shores of Skyning Water to longitude 72°, and then extends along eastern shores of Desolation Sound and Kirke Water; running thence due northward towards Lake Viedora, Lake Argentina, and Lake St. Martin, which are, respectively, the sources of the rivers Santa Cruz, Sheuen, and Chicos, which traverse the territory of Patagonia and empty into the Atlantic Ocean. Beyond these it continues northward to the sources of the Rio Negro, which waters, with its numerous branches and affluents, a large territory stretching along the base of the Cordilleras towards the province of Mendoza. Señor Morena,* who has explored the Rio Santa Cruz to its head waters, speaks generally of the "immense virgin forests" which he found at the base of the mountains. But the entire region of Patagonia eastward of these timbered districts is a succession of sterile plains, which rise from the coast, one above the other, like terraces,† uniformly about 300 feet high, and are traversed occasionally by ravines and flat-bottom depressions, some of which contain salt lakes. These wastes stretch away in dreary uniformity without a break to the far horizon, presenting a barren landscape so grim and so monotonous as to fill the traveler with a feeling of awe. The formation of the land is tertiary, resting on porphyry and quartz, ridges of which often protrude through the surface. In some parts they are capped by layers of lava. The soil is sandy and covered with water-worn stones, with here and there an isolated tuft of grass, withered and gray, whilst a peculiar gloom is further added to the melancholy of the scene by the somber hue of a straggling, stunted bush, the *jume* (*Salicornia*), which grows in considerable quantities, and which is described as a fit offspring, in its blackness and ugliness, of such uncongenial soil.‡ Further than this, if we except the *calafaté* (*Berberis arifolia*), also a miserable thorny shrub, which, however, would anywhere else be admirably adapted for live fencing, there is nothing on these arid plains which can be called timber, though in the valleys of the rivers, especially those emptying into the ocean north of 40° of latitude, there is a species of willow (*Salix humboldtiana*) which grows to very large proportions, and, in the absence of anything better, is used for building purposes.

THE TREELESS REGIONS OF THE PAMPA.

The river Colorado, which empties into the Atlantic Ocean in latitude 39°, is the northern boundary of Patagonia, on the north side of which begin what are known as the Argentine pampas,§ the soil of which is a complete contrast to that of the former region. They occupy the entire area of the province of Buenos Ayres and extend into those of Santa Fe, Cordova, San Luis, and Mendoza. They seem to be uniformly level, but these boundless plains rise gently in every direction from the sea, at first at the rate of about one foot per mile, and then more, until the large plateaux near the Cordilleras attain an elevation of 2,000 feet above the level of the sea, and ultimately terminate in the high parks of the Andes. The character of the

* *Viaje á la Patagonia Austral, 1876-'77, por Francisco P. Morena, p. 460.*

† Darwin accounts for the regularity with which these plains rise one above the other by the supposition that the land has been raised in a mass from under the sea, the upheaving movement having been interrupted by at least eight long periods of rest, during which the sea ate deeply back into the land, forming, at successive levels long lines of escarpments, which separate the different plains.

‡ "Wanderings in Patagonia," by Julius Beerbohm, 1876, pp. 22 and 105.

§ In the language of Quichee Indians "pampas" means level.

soil corresponds to the inclination, as though the continent had been formed by some great flow of waters depositing bowlders and rocks near the mountains, then districts of pebbles and water-worn stones, then coarse gravels and sands, and lastly the finer sands and clayey deposits which cover the great alluvial plains, and which are evidently the *débris* of the crystalline rocks of the mighty range of the Andes leveled and sorted by the action of water. The surface of all this vast area is covered by the richest of succulent grasses, but normally it is without a tree or a ligneous plant. It is a magnificent pasture ground, but its flora is poor and monotonous. It is remarkable that a soil on which timber grows so luxuriantly when planted should from time immemorial be so totally destitute of forests. The only exception is that in the sierras of Tandil, 200 miles south of Buenos Ayres, there is a region of dense brushwood called *carmamoel* (*Colletia cruciata*), which grows about the height of a man, and which has no leaves, but is covered with sharp thorns in the shape of a cross. And another exception consists in a strip of woods which extends from the latitude of Buenos Ayers down along the Atlantic coast composed principally of good-sized trees of the *tala coronillo* and *espinillo*, which are used for various economical purposes. As a proof that the soil of the pampas is perfectly adapted to arboreous vegetation, I would mention that in various parts there are now extensive belts of cultivated timber, among which is the peach tree, which produces both fruit and fuel; also several species of the *Eucalyptus*, the *Robinia*, the Paradise tree, and the Lombardy poplar, all of which grow with facility and rapidly, and are used not only for shade but for many economical purposes. There is one tree indigenous to the pampas which I should mention from its singular character. I refer to *ombr* (*Percunia divica*). At a distance it is one of the most attractive objects. It grows to immense proportions, with gnarled roots and knots projecting up and around the trunk in all manner of fantastic shapes, and affords a wide-spreading shade of dark velvety leaves, a most refreshing resort for the *siesta* of a weary traveler; but for the rest it is utterly worthless. Its wood is really not ligneous, having neither fiber nor consistency, and resembling punk or a sponge more than anything else. These trees, if trees they may be called, do not grow in forests, but only singly and isolated, here and there at long intervals, being landmarks on the far horizon—sentinels, as it were, of the pampa.

THE TREES OF THE EASTERN SLOPES OF THE ARGENTINE ANDES.

Where the pampas approach the western mountains, all along the outlying slopes of the Cerdilleras of the Andes, but distinct and isolated from them, and extending northward to the confines of Bolivia, there is a formation partly composed of open forests and partly of shrubs and ligneous plants, which the scientists have designated by the name of the Monté formation. It embraces a great part of the western slopes of the seven Andine provinces, to wit, Mendoza, San Luis, San Juan, Rioja, Catamarca, Jujuy, and Salta. Prof. Groesback, in his celebrated work, the "Vegetation of the Earth," calls it the "Chañar Steppe," from the arborets of that name which are so generally distributed through it. The trees which constitute this formation consist principally of species of *prosopis*, *mimosa*, and *acacia*. They are at first found in rather diminutive forms, and bristle with scattered branches provided with thorns or thorny leaves, but as you reach the higher elevations, where the "Puna formation" proper is found, the extended plains and broad valleys are thickly wooded with immense specimens of the same type of trees, growing far up on the mountain sides. In some parts, and especially in the sierras of San Luis and Cordova, these forests are so beautiful and picturesque in their arrangement that they look like artificial parks.

Among the most noted of the trees which characterize these everchanging landscapes is the *algarrobo* (*Prosopis alba*), specific gravity 0.740. The size of this species varies, according to locality, from mere bushes to quite lofty trees, branching, however, at a short distance above the ground, with thin tops of feathered leaves.

While the timber is much esteemed for construction, its fruit, which is a pod of sweet pulp, is an excellent food for cattle. The natives also make a species of bread out of it called *patao*, and also extract a liquor from it which when new is quite refreshing, but after fermentation is very intoxicating, and hence is a favorite beverage at some of their social meetings.

The *nandubay* (*Acacia cavernia*) is a small tree, whose hard and heavy wood make it much sought after for fence and telegraph posts. It is said to be almost indestructible, neither air, water, nor earth having any effect upon it. It produces a fruit which contains a great deal of tannin, and is also employed as a black dye. Specific gravity, 1.100 to 1.221.

The *Acacia moliniformis* bears a fruit also much sought after by cattle, though most of the species are characterized by such enormous thorns that in some parts the woods are almost impenetrable. I would add that a gum exudes from these trees which I believe could be made into gutta serena if the proper processes were employed.

Another very important tree found in this formation is the *quebracho*, the most frequent variety of which in these forests is the white (*aspidosperma quebracho*). It is of middle size, with oblong, thorny leaves. It forms great forests in some districts, and its timber is very useful for various purposes, and latterly has been applied in the xylographic art. It takes an exquisite polish. Specific gravity, 0.880.

The *moyes* or *molles* is also a valuable evergreen tree and exceedingly beautiful in its appearance. One species produces a fruit from which is prepared a sweet, aromatic, refreshing liquor; another variety bears a berry from which incense is manufactured, and still another is used for tanning purposes, while a fourth variety (*alvarillo del campo*) is noted for its savory and refreshing fruits, which are very similar to plums, and only the more agreeable because they contain a certain after-taste of bitter almonds. Specific gravity, 0.520.

The *chañar* (*Gurliaca decorticans*) is found everywhere throughout the submountainous regions, and its wood is much appreciated on account of its firmness and durability. It produces a sweet and savory fruit, and has the peculiarity of annually renewing its bark. Near the tropics it attains large proportions, though its trunk is irregular. Specific gravity, 0.568.

Giant Cacti Forests.

There are many other trees in this formation, but they are small and have no value for timber purposes; and also a great variety of shrubs and brushes, to say nothing of vines, parasites, epiphytes, airplants, etc., though they do not come within the scope of this sketch. I must, however, refer to the family of the *cactæ*, which are as strange in form as abundant in distribution. They attain to immense proportions, some of them reaching a height of 40 feet, with trunks in proportion, and their wood is used in different industries and also in the mines. In a late visit to the northern provinces I passed through a forest of these gigantic cacti. It was one of the strangest and most weird sights that can well be imagined. They stood in groups. Here they frowned upon us spherical and spirated with formidable thorns nearly a foot long, and yet from their grooved sides radiating most delicate flowers; there they rose in tall fluted columns like ancient ruins, or with their long-jointed arms in menacing attitude, looked like giant witches beckoning you to stop; and yonder through the vista they were trailing like huge serpents over fallen trees or coiling in the crevices of the outcropping rocks. The largest species is the *cereus*, the flowers of which are white; those of the *opuncia* are orange color or yellowish red, while the serpent-formed *cactæ* have lively red flowers. One species produces the *tunas* or "figs of Algiers," some breed the cochineal insects, the cultivation of which is now carried on to some extent in Tucuman, and which, if proper methods were adopted, could be made of great importance to the country. At present the

natives gather the eggs of the insects and make them into dry compressed balls or cakes, weighing about a half pound each, which they sell for \$1 apiece for commercial purposes.

THE GREAT SUBTROPICAL FORESTS.

We now approach what is designated by Moussy as the "tropical" and by Prof. Lorentz as the "subtropical" forests. This formation is the garden of the Argentine Republic, and presents to us landscapes of such magnificence and fertility that we seem to be wandering in an enchanted wilderness. It exists in the high table-lands on the eastern ranges of the Cordilleras and their branches, whose waters are drained by a thousand streams and water courses towards the Parana and its great affluents. These plains and watersheds are all adorned with the rankest of tropical forests, which pass to the northward beyond the confines of the provinces of Salta and Jujuy into the territory of Bolivia, thus reaching to the latitude of 21° south.* Nearly all the varieties of trees which characterize the preceding formations are here found in more accentuated proportions, while it is rich with the magnificence of a hundred additional species, many of them so covered with *epiphytes* and airplants that it is sometimes difficult to discover the verdure of the tree to which they are attached; and both trees and plants producing flowers of many brilliant colors. Gigantic *Uaë* twine around the trunks and drop their air-roots to the ground, while their branches reach out and involve the branches of other trees in the vegetable mesh. Sometimes trees are seen growing upon other trees, their roots buried in the dust, which through centuries has been accumulating at the foot of the branches. On one occasion, in climbing to the heights of the Sierra Aconquija, in the vicinity of Tucuman, I undertook to penetrate this wealth of vegetation which fairly filled the gorges leading to the table-lands above, and where for ages the sunlight has been shut out from the earth by leagues upon leagues of arboreal giants; but the wild and tangled mass of undergrowth disputed every foot of approach, and I had to relinquish the attempt.

It seems almost impossible to exaggerate the wealth of timber which is found in these high latitudes. There is hardly a tree but possesses some special value for particular purposes. There is in the University of Cordova a very rich display of many of the varieties, being sections taken from the trunks and polished. They uniformly exhibit an exceedingly fine grain, embracing every shade of color, from the richest rose to the deepest green, from the darkest ebony to the lightest cream, some with most exquisite veins and others with manifold variegated hues. In any other country than this they would be esteemed as precious woods, equalling and rivaling those of Central America or Brazil, but they are at present so remote from market that for commercial purposes many of them are yet almost valueless. I

*On crossing the Rio de las Piedras, a river of the province of Salta, we entered at once the territory of Oran, the extreme northern limit of the Republic, which lies just above the tropic of Capricorn; our path still lying through dense forests, whose stems were frequently rendered completely invisible by reason of the close clasp of the thick and tangled mass of creepers which, in full flower, not alone from summit to base, but roofing the lofty vault with superb campanulate rounded heaps of blue, white, violet, and rose, emitted overpowering but delicious perfumes. " * * * Our course was soon arrested by another river, the Santa Maria, and on reaching its further bank we entered the densest forest I ever saw; not the cathedral-like columnar-stemmed trees, rising 70 or 80 feet without a limb, and then surmounted by a branched, leafy, floral dome, such as I had seen in other parts of the country, but an impenetrable mass of entwined, gnarled, fantastic plant development, confusing trunks, branches, foliage, and flowers in one inextricable melange from top to bottom. Two growths contributed to this effect; one superior, of massive size and impending, the other inferior and consisting principally of wild orange groves, etc.—(White's Note Book of a Naturalist, vol. XI, p. 307.)

could hardly undertake, within the limits of a sketch like this, to give a detailed description of all the trees composing the magnificent forests of the province of Tucuman and the valleys of Salta and Oran, so admirably fitted, as they are, for the purposes of the engineer, the builder, the cabinetmaker, the shipwright, the tanner, and the dyer. I can only assume to mention a few of the most important, so far as Prof. Lorentz and others have identified them; though in some instances the scientific names may not be entirely reliable, since in the different parts of the country the same popular name is given to trees which differ very materially and sometimes have nothing in common save the indigenous name. Besides those which I have already referred to as especially characterizing other portions of the Republic, but which are also found in this zone, I would mention the following as the most common and most magnificent:

The laurel (*Nectandra porphyria*), which is a very beautiful tree, with a huge trunk and a dense crown of pinnated leaves, growing to the height of 60 or 70 feet.* There are several species, all of which are abundant and valuable, especially for cabinetwork, and one of which contains camphor in its leaves; it rivals ebony in color and polish. Specific gravity, 0.580 to 0.845.

The *tipa* (*Macharium fertile*), also possessing a splendid form and rising to the height of 150 feet, with a straight trunk, which branches about 70 feet from the ground. In the spring it is covered with papilionaceous flowers, producing a beautiful effect from a distance; easily worked; used for railway plant. Specific gravity, 0.660.

The *nogal* (*Fulgans nigra*), very similar to the European walnut, and producing an edible fruit, and, on account of the ease with which it can be worked and the fine lustrous polish it takes, it is much used in cabinetwork. Specific gravity, 0.538.

The *ramos*, two varieties (*Cupania uruguensis* and *C. vernalis*), greatly resembling the nogal in appearance and uses, but very hard, indeed almost impermeable. Specific gravity, 0.576.

The *cedro* (*Cedrela braziliensis*). There are several varieties, all producing a most beautiful wood, soft and easily worked, and therefore in great demand, being used for furniture, and resembling mahogany in its polish and the rich veins which it possesses. Specific gravity, 0.480 to 0.740.

The *mato* (*Eugenia mato* and *E. uniflora*), two magnificent species of the *Myrtaceæ*, with myrtiform leaves and edible fruit of the size of a cherry. The wood is rich in its colors and is used in decorative carpentry. Being tough and flexible, it is also much used for poles to carriages. Specific gravity, 0.890.

The *palo de San Antonio* (*Myrcine floribunda*), a tree of majestic proportions in the primitive forests, and producing excellent building timber. Specific gravity, 0.695.

The *lanza* (*Myrcene marginata*), also a very majestic tree, and takes a beautiful polish, thus making it desirable for furniture. Specific gravity, 0.738.

The *lapacho* (*L. bignonacæ*), belonging to the genus *Tecoma*, a tree of great dimensions and very beautiful. It would be almost impossible for the vegetable kingdom to present a more imposing spectacle than these gigantic trees when their branches, dark and leafless during the winter, are covered in the spring with millions of yellow or rose-colored flowers, which precede the sprouting of the leaves. The wood is of a green color, hard, heavy, and solid, and susceptible of a very fine polish. It

*Mr. White, in his Notes of a Naturalist, says: "Throughout the forests of Tucuman the laurel is everywhere found, sometimes forming extensive forests, in whose recesses numerous freebooters found, of yore, shelter and safe concealment. Imagine gigantic trunks, some 9 feet in diameter, jostling one against the other and rising perpendicularly 70 feet, crowned with an ample and elegant nimbus. Beyond the mere grandeur and poetry of the scene, the centuries that these patriarchs have scored their bark, what an inexhaustible commercial and medicinal wealth for future ages!" Vol. XI, p. 139.

is greatly appreciated in all kinds of constructions. It has the property of becoming petrified upon exposure to the air, sand, or water.

The bark possesses coloring material, and several different dyes are made from it. Specific gravity, 1.072.

The *palo borracho* (*Chorisia insignes*), a very singular tree,* with a swollen, oval-shaped trunk, covered with blunt, quadrangular thorns, digitated leaves, large white flowers, and the fruit full of a species of white cotton of little coherent fibers, used for making cloth, lampwick, etc. The form of this tree is one of the most singular to be seen in the country.

The *urunday*, a species of *bignoniaceæ*, a very abundant tree, and produces a most excellent wood. It is imperishable, polishes exquisitely, and makes beautiful furniture. There are two kinds: the black with white veins, and the white with jasper, black, and yellow veins; thus producing a very unique veneering. The wood is used for joists, pillars, columns, and ship-timbers, and is the best timber known for railway ties and sleepers; also excellent for axletrees on account of its resistance and inflexibility. The tree reaches the height of 100 feet and a diameter of 8 feet. Its leaves are lanceolated, and its bark, which is not very thick, is preferred for tanning hides. Owing to the difficulty of transporting them, the lumbermen do not fell the largest trees. Specific gravity, 1.092.

Palo blanco, a large tree whose wood is of a straw color, whereas the bark is whitish. In spite of its great height and circumference large timber cannot be procured from it, for the reason that the trunk is deeply fluted, having somewhat the appearance of a Corinthian column. Its wood is very highly grained, and resists friction with such persistence that it is considered the very best material for ship-blocks. The wood is aromatic and similar to mahogany in its color and quality. Specific gravity, 1.010.

The *titané*, of which there are two varieties, the white and the yellow; much used in the construction of fine furniture. The bark possesses a piquant juice. The tree attains to the height of about 50 feet and is about 1 to 3 feet in diameter. The wood, which polishes beautifully, has the advantage that it neither swells nor shrinks according to the state of the temperature. Specific gravity, 0.650.

The *cibil* (*Piplidæmia cibil*). There are several varieties of these acacias, the white, the red, etc., all of which, though found elsewhere, reach to large proportions in the subtropical forests, attaining a height of 40 feet and a diameter of 2 feet. The bark is rich in tannin and is in great demand for that purpose. The wood is very hard and takes a lustrous polish. Specific gravity, 0.854 to 0.956.

The *espinillo* (*Acacia cavenia*), a different tree from the shrub of the south, but a

* Proceeding over some low hills, a very peculiar looking tree presented itself, which the natives call *palo borracho* (drunken tree), but the Indians call *yuchen*, standing about 50 feet high and spreading from the crown branches covered with digitated leaves, dotted here and there with large white flowers whose naked stems before branching expand into one immense egg-shaped form fully 20 feet in height and 24 feet in circumference, sounding hollow when struck, and whose bark is covered with hard, short, quadrangular, blunt spines. The specimen I here saw was certainly full grown, and this remarkable tree is only found on elevated, rocky ground. The inhabitants of this province (Catamarca) and Santiago, scoop out the spongy center and use the hollow barrel-like stem as a storehouse, whilst in some parts of South America the stems are cut in half, and form capacious Dutch-like canoes. The seed-pods, likewise of egg shape, and about the size of the human fist, contain abundance of cottony fibrous down, from which are manufactured cloth, candlewick, and pillows, which latter, besides being delicately soft and springy, have proved beneficial to consumptive patients. When they get matted, exposure to the sun soon renders them once more puffy and elastic. (Cameos from the Silver Land, by Ernest William White, F. Z. S. London, 1882.)

magnificent variety of the family of *Leguminosa*, having no thorns and producing an excellent wood for various purposes. Specific gravity, 0.766.

The *mora*, a very large tree, with heavy yellow wood, which grains beautifully, and on being worked takes the color of the richest mahogany, and is greatly used for the manufacture of the best furniture. The tree produces an edible fruit. Specific gravity, 0.935 to 1.090.

The *quebracho colorado* (*Loxopterygium lorentzii*). Quite a different tree from the *Q. blanco* found elsewhere. It is very abundant throughout the northern portions of the Argentine Republic. The wood is a deep red, and remarkable for its extreme hardness and weight. It is almost indestructible. Since the discovery of the country it has never been found rotten or decayed, no matter in what position, in air, earth, or water, it might be placed. It forms a most important article of commerce, and, owing to the immense size to which it grows, upwards of 200 feet with 10 feet of diameter, is used for ship-timber, beams, spiles, joists, bridges, etc., and makes most enduring railway sleepers and ties. It also takes an exceedingly fine finish, and is greatly in demand in carpentry work for doors, window-frames, cabinets, etc., the luster being equal to that of rosewood. In wood engraving it takes the place of boxwood. Specific gravity, 1.234 to 1.392.

There are many other valuable trees of the largest size found in this part of the country, among them the *quina-quina*, which produces an aromatic resin, and whose bark is used as a fever antidote and tonic; the *cascain*, with a red and lustrous bark; the *palo mortero*, very similar to the tips already described; the *pacay*, the *sinquillo*, the *mayana itara*, and others not yet classified, all of which furnish most valuable timber, each one with some certain quality for certain uses, such as building, turning, furniture, cabinet-work, etc., but I have no descriptions of them. In the subtropical forests, which we are considering, there are also numerous smaller trees, nearly all of them hard wood, bearing a rich foliage and exceedingly ornamental; also a great variety of arborets, bushes, climbing plants, etc., many of them exquisite coloring in their leaves and flowers, but it hardly comes within the object of this sketch to mention them.

In the mountains of the Andes, beyond the chain of the Aconquija, and on the slopes of the Cordilleras proper, is found in extensive forests the pine tree (*Podicarpus angustifolia*). It is of medium height and of compact crown, but it is not similar to the European pine. The inhabitants utilize the timber, but there is no demand for it, on account of its inaccessibility to the market, and it is at present of but little importance in the economy of the country.

TIMBER RESOURCES OF THE GRAN CHACO.

Along the eastern borders of the subtropical regions whose forests I have been describing, lies an immense territory, in some parts reported to be arid and waste for want of water, but in others filled with a succession of rivers, and in time destined to be one of the most valuable portions of the Argentine Republic. It is called the "Gran Chaco." It extends from the Paraná to Bolivia, and is separated on the east from Paraguay by the river of the same name. The last Argentine census gave it a superficial area of 621,000 square kilometers, but as its limits have not yet been fixed with the neighboring provinces, its real area can not yet be determined. It is divided by the river Vermejo into two almost equal parts, one called the "Chaco Austral" and the other "Chaco Boreal," the last extending to latitude 20° south, and bounded on the north by the Bolivian province of Chiquitos. The "Chaco Boreal" is composed of an uninterrupted plain elevated about 400 feet above the level of the sea, with a heavy soil of humus, and is divided into the most beautiful forests with intervening meadows as if made on purpose for the raising of cattle. The Austral or Southern Chaco lies between the Vermejo on the north, the Paraná on the east, and the province of Santa Fé on the south. It is also completely level and is richly endowed by nature, not only with a deep soil but with most magnificent

forests. As yet these vast regions are almost exclusively occupied by wild Indians. A large portion has never been explored, and hence but little is yet known of the interior with its treasures of vegetable wealth. Only where it skirts along the Paraná and Paraguay rivers, with here and there a small clearing and settlement, the nucleus of a number of agricultural colonies, has anything been scientifically determined in reference to its timber resources. As far, however, as its fastnesses with their succession of small rivers and watercourses have been penetrated they are found to be covered with the densest forests of lofty trees descending down to the river line. The growth may not be quite so noble and sky-piercing as that which is found in the forests of Tucuman and Oran, but it embraces, so far as is now known, quite the same varieties and an equal abundance. And the region possesses this immense advantage, that by means of the great watercourses flowing along its eastern borders and the smaller streams, including the Vermejo and Pilcomayo, which penetrate its interior and which are found to be navigable for many hundreds of miles, all its vast wealth of precious woods and valuable timber is rendered accessible not only to Buenos Ayres, but, as ocean ships can load along its banks, also to the markets of the world, without the necessity of transshipment. As I have said, the more elevated portions of the Chaco present a landscape like a park where clumps of woods alternate with open meadows. The lower parts are covered with continuous forests and an undergrowth which in some places is so dense as to make it impossible to penetrate into the interior. But the woodchoppers are at work, and the quantities of all kinds of precious woods which are shipped down the rivers are becoming greater and greater every year. As yet the greatest demand in this market is for the *quebracho* of both varieties, which finds a use in almost every kind of construction. The *algorrobo* is also in great request, as likewise the *nandubay*, immense quantities of the posts of which tree are used for wire-fencing on the Pampas. Besides what comes to Buenos Ayres, however, there are ship loads after ship loads, which are exported directly to Germany and France, and there made into the most costly articles of furniture, or sawed up into veneering which rivals anything which comes from Brazil or Central America. I have said that nearly all the varieties of trees which I have heretofore described as belonging to the subtropical forests are also to be found in the Chaco. There are also numberless varieties which seem to be especially indigenous to that region. Among these are the following:

The *blanco grande*, a beautiful tree which grows to the height of 25 feet and is 18 inches in diameter. Its wood possesses a very fine fiber, and is used for mechanical moldings, and also for cabinet work. Specific gravity, 0.720.

The *carandá*. It belongs to the family of the *algorrobos*. It grows to the height of 30 to 40 feet, with a trunk of 18 inches in diameter. The color of its wood is violet, very solid, and of an excellent grain, and valuable for furniture and cabinet work. Specific gravity, 1.197.

The *carapay* (*Acacia altramantaria*), a large and beautiful tree. The bark is used for tanning hides and is an important article of commerce. The wood is red, with black veins, which polishes exquisitely and is used for fine furniture, cabinet work, and veneering. The wood is very durable and is excellent for railway sleepers. Specific gravity, 0.977 to 1.180.

The *cuirú*, one of the tallest trees to be found in the Chaco. It attains a height of over 150 feet, with a diameter of not more than 4 feet. Excellent for masts, yard-arms, rafters, etc. Specific gravity, 0.580.

The *timbó*. This is also a large tree, having a height of 70 to 80 feet and a diameter of 3 to 3½ feet. It is a soft wood of about the consistency of pine, though in color it resembles cedar. It is greatly used and makes excellent flooring, weather boarding, etc., having the good quality of not warping, though flexible and light. Specific gravity, 0.425.

The *palma* (*Copernicia campestris*). Several varieties, and especially the black and the yellow palm, are found in the Chaco, where they occupy large tracts in forests

by themselves. They attain to a height of 30 to 40 feet, with a trunk of 1 to 2 feet. These varieties are also found in the province of Cordoba. Fans are made of the leaves, and its fruit is very sweet and much sought after by animals as well as men. Sweetmeats are also made of the dried dates, from which likewise a species of rum is distilled. The timber is not worth much, except for corrals and other fencing. The effect produced by these immense forests of palm trees, with their trunks all bare and their round thick crowns, all exactly uniform, is very picturesque and inviting. Specific gravity, 0.960.

The *guayaivi*. This tree grows to the height of 30 to 40 feet, with a foot diameter. It produces a very white wood with a black heart, and owing to its strength is used for lance heads, oars, handles of tools, etc. Specific gravity, 0.907.

Besides these trees there are others equally well known, such as the *mora*, the *olmo* or elm, the *blanquillo*, the *ciñal*, the *peterebi*, but I have no description of them, and others still whose Indian names, much less their botanical, I am not able to give. Indeed, so little is yet known in regard to the forests of the Chaco, that Prof. Lorentz still calls it a *terra incognita*, so far as science is concerned. The number of smaller trees, arborets, shrubs, etc., which occupy that vast region have also yet to be studied, though there is one, called the *chaquar*, of the family of *Bromeliaceæ*, which is a characteristic plant of great utility to the Indians. They make ropes, house lines, and cloths of different kinds with its fiber, and especially shirts or *ponchos*, which serve as cuirasses, being impervious to arrows; also fishing nets, baskets, etc. They also eat its bulbs, and its fruit serves as a very piquant condiment. The *vinagrilla* is another shrub which produces a pod as acid as vinegar. The *pirchuna* is used for the manufacture of brooms. The *alamisca* bears a berry, which is said to possess the intensest bitter known. The *avarillo* produces a delicious almond.

FORESTS OF THE ARGENTINE MESOPOTAMIA.

We now come to the Argentine Mesopotamia, as all that tract of country is called which is embraced between the Uruguay and Paraná rivers, extending from the island of Martin Garcia, opposite Buenos Ayres, northward to the borders of Brazil, a region of over 1,000 miles in length, and varying from 50 to 200 in breadth. It comprehends the provinces of Entre Rios and Corrientes, the territory of Misiones, and the Republic of Paraguay, as also the thousands of islands which dot the two great rivers named. The vegetation of the shores of the Uruguay in great part consists of forests composed of a palm tree called the *coco yatái*, also the *coco australis* and other species of the cocoa-nut tree, also a bamboo called *taouard*, and the *inga*, a very large tree of the *Mimosa* family, while farther up the river, approaching the "Misiones," are found the *urundey*, the *lapacho*, the *timbo*, etc., but they do not attain to a very massive growth until about the twenty-eighth degree, from which point northward the vegetation exhibits an extraordinary development, quite corresponding to that of Brazil. The shores and islands of the Paraná River, having a soil less argillaceous than those of the Uruguay, present a different arboreal growth. The delta of the Paraná abounds in willows, one variety of which, called the *sarandi*, is a very rapid grower, and is used for fire wood. There is also a most exuberant growth of wild peach trees and orange groves. The former is also used for fire wood, while the fruit finds a market in Buenos Ayres. The oranges of the littoral are rather sour, though they improve upon being transplanted. The bitter orange, which also grows here, is used for the manufacture of a favorite beverage. As we advance up the river the islands more and more exhibit the characteristics of the Chaco formation.

If now we penetrate into the interior of the Argentine Mesopotamia, we will find forests of the harder and more useful species, such as the *talas*, the *chañares*, the *algorrobos*, the *quebrachos*, the *vivaros*, the *naudubays*, etc., all of which varieties line the watercourses and fill the bottom lands of Entre Rios, and form to the northwest

the great forest of Montiel, which covers the sixth part of that province. The province of Corrientes is even more woody, and with a more tropical development, until we reach "Misiones" and the neighboring Republic of Paraguay, which offer a wealth of timber, rivaling anything that can be found even in the far-famed regions of Oran, not only in dimensions, but also in the fineness of the grain. Most of the varieties which compose the forests of the Gran Chaco are also indigenous to the "Misiones" and Paraguay, while there are a great number of new species, many of which having never been scientifically classified, still flourish under the names given them since time immemorial by the Guarané Indians.

During the recent Argentine National Exposition held in Buenos Ayres, there was on exhibition a most magnificent collection of the various woods which are found in the above regions, consisting of lateral sections of the trees, exquisitely polished so as to exhibit the grain and texture. The collection was credited to Paraguay, but it corresponds equally well to the upper portions of the province of Corrientes and the territory of Misiones, and as it embraces nearly or quite all of the valuable timber indigenous to those regions, I give the list complete according to the names by which the trees are locally known.

TREES OF THE MISIONES AND PARAGUAY.

1. *Sappy*, a large tree suitable for various uses.
2. *Ibyra-yu-quazú*, large and grows to a grand height with dense foliage; timber valuable for building purposes.
3. *Laurel amarillo*, the yellow laurel, also an immense tree, beautifully grained, and useful in all kinds of construction.
4. *Quebracho*, like that found in other subtropical regions, very hard and heavy and quite indestructible; serves for various purposes.
5. *Ibyrá-pitá*, a large tree with very hard wood, used in carpentry work.
6. *Cedro colorado*, the red cedar, a very light wood which is as soft as satin, employed in cabinetwork, and resembles mahogany in its beautiful veins.
7. *Timbó*, a large and bushy tree with white wood, very light, and the natives make canoes of it.
8. *Lapacho piruzú*, a variety which has exceedingly fine fibers, used for cabinetwork and other constructions of the first class.
9. *Lapacho*, the same valuable tree which has heretofore been referred to.
10. *Urundey-mi*, a tree of ordinary size, but much used for various purposes in carpentry work.
11. *Guayaybi*, a small, flexible tree, used for handles of tools and other things.
12. *Curupay-guazú*, a tree of grand proportions, used for the manufacture of furniture, owing to the fine polish it takes.
13. *Curupay-rau*, rather a small tree, used for cabinetwork.
14. *Urupiu pita*, fine grained, and used for the same purposes as the preceding.
15. *Yuqueri-busu*, an immense tree, used in heavy constructions and house-carpentry.
16. *Ibyra-poroité*, of ordinary size, but very fine grain, and useful for cabinetwork.
17. *Urupiu-mi*, a very large tree, whose timber is used for planking and furniture.
18. *Camba-acá*, a small tree with exceedingly hard wood; has various uses.
19. *Eapina de corona*, an immense tree; wood very hard; in general use for heavy timbers, but takes a beautiful polish, and valuable for various purposes.
20. *Arrayan*, of ordinary size, used in decorative carpentry.
21. *Incienso*. This is the incense tree, so called from the pungent smell of the resin which exudes from it; a very large tree, used for cabinetwork.
22. *Guabird*, a large tree which bears a delicious fruit; the timber used in carpentry work and for other purposes.
23. *Iba-hai*, a tree of rather large proportions, whose timber takes a fine polish and is useful in cabinetwork.
24. *Yatayrá*, large, but of little use.

25. *Caohoveti-glazú*, the same.
26. *Aquai*, a large tree which produces an excellent fruit and whose timber is employed for various purposes.
27. *Ibará-ró*. This tree likewise produces fruit and finds a general use for furniture and carpentry work.
28. *Granadilla quazú* bears a fruit, but its timber is little used.
29. *Tataré*, a tree of ordinary size; its bark is used for dyeing purposes and its timber for all kinds of carpentry work, having a beautiful grain which takes a fine polish.
30. *Corupicay*, large and resinous; makes beautiful furniture.
31. *Tembetary-negro*, a large tree with dark wood that is handsomely veined; used for furniture.
32. *Ingá-blanco*, also used for furniture.
33. *Petereby*, a large tree with wide-spreading branches, producing a heavy timber, which is used in constructions and building.
34. *Avatren-quazú*, ordinary size and bears a pleasant fruit; not much used.
35. *Ibirayt-quazú*, a very large tree, whose timbers are much used for heavy building purposes.
36. *Yagua-ratay*, of little use, though a hard, compact wood.
37. *Taperibá*, large and bushy, used also in heavy constructions.
38. *Ibira-pépé*, the same.
39. *Timbaly*, very straight and tall—wood white; used for beams, axle-trees, etc.
40. *Navanjo-agrio*. This is the bitter-orange tree; heavy, and used for cabinetwork.
41. *Tembetery-blanco*, large, with very light wood of a white color; not much used.
42. *Cupay*, very large proportions; the wood exceedingly fragrant, richly veined, and used for cabinetwork.
43. *Parapary*, large tree, producing a very fine-grained wood, which takes a beautiful polish; used in all kinds of carpentry work.
44. *Nandapá-mi*, very similar to the above.
45. *Guiray*, the same.
46. *Urundey-mi*, a very large tree, close-grained, which polishes well; used for cabinetwork and other purposes.
47. *Guiavi-saise*, a large tree, which works easily and is used for many purposes.
48. *Curupay-raú*, moderate size; wood used for cabinetwork.
49. *Ibyra-pita*, a very large tree, whose timber is valuable and used for building purposes.
50. *Ibirayu-grande*, grows to a great height, and is used for cabinetwork.
51. *Incierso-amarillo*, a tree of great proportions, which serves for the manufacture of furniture and railway carriages.
52. *Urundey-pará*, a large tree, greatly admired for the beautiful veins of its wood, used for fine cabinetwork and also for wood engraving on account of its hardness and fineness of grain.
53. *Taperiba-quazú*, a tree of immense proportions, and whose lumber is used for building and other purposes.
54. *Guayaybi-blanco*, not of very large size, but its wood is very flexible; useful in carpentry work.
55. *Ibyra-ró*, rather a large tree, in general use for various constructions.
56. *Laurel-negro*, also a large tree, whose timber is beautifully veined, the wood being almost black; used for fine cabinetwork.
57. *Tatané*, a large tree whose bark is used for coloring, and whose wood is much esteemed in carpentry work.
58. *Iba-poroiti*, a tree which bears a delicious fruit, and whose wood, very fine grained, is used for cabinetwork.
59. *Iba-hai*, very similar to the above; its wood is used for inlaid or mosaic work.
60. *Caahobety colorado*, very tall and slender, whose wood is used for beams, axle-trees, etc.

61. *Ibyra-hobi*, also a tall, slender tree, and used for like purposes as the preceding.
62. *Curupay-hu*, a large tree, whose timber is used for furniture and other things.
63. *Campeche*, of large size, and very dark-colored wood, which takes a fine polish, and is used for cabinet and other work.
64. *Palo de lanza*, of ordinary size, but possesses a very fine wood, and is used for finest cabinetwork.
65. *Palo-rosa-colorado*, the darkest colored rosewood; used for veneering and finest grades of furniture.
66. *Timbo-colorado*, a large tree, easily worked; wood used for making wagons and railway cars.
67. *Guayaibi-blanco*, a tree of ordinary size; used for furniture, etc.
68. *Guayacan*, rather a small tree, but its wood is extremely hard and used for many purposes.
69. *Tatayiba*, a very large tree with beautiful dark wood, which is used for furniture, cabinetwork, etc.
70. *Palo Tanto*, of ordinary size; used for various purposes.
71. *Iba pobo*, a large tree which is much used for elegant cabinetwork, owing to its beautiful veins.

The uncivilized names of the most of these trees may not be very attractive reading, but it is almost awe-inspiring to wander through the immense primeval forests in which these arboreal monarchs stand as solemn witnesses of the centuries which have passed since they began their growth.*

The valuable timber which they represent is almost too remote from market to be available yet; but one is impressed with the bountiful provision which nature has made for the future wants of mankind.

Those districts of the Misiones which border on the Upper Paraná river are, in some places, especially distinguished by extensive forests of *caoba*, the celebrated mahogany tree of commerce, as also the rosewood (*palo de rosa*), so generally used for veneering, though there are many other trees which take an equal polish and are fully as handsomely veined. There are two species of the rosewood tree, known in the country as the male and female. The wood of the first is the hardest and most difficult to polish, and has no veins; while that of the other is much softer, is of rather a more pronounced red color, with very dark veins, and furnishes to the cabinetmaker a most esteemed material. The tree is of great circumference, and its specific gravity is 0.700.

The cedar of the Misiones is principally found in that portion bordering on Corrientes. There are three varieties, distinguished from each other by color of the wood, but all equally adapted to the purposes of commerce. Specific gravity, 0.572.

The pine of the Misiones is generally found in immense forests by itself. It, however, like many of the other valuable woods of this region, hardly yet enters into commerce, notwithstanding the excellence of its timber, for the reason that more accessible forests offer other woods as an abundant compensation. Specific gravity, 0.410.

In the forests of Paraguay and Misiones is also to be seen the famous evergreen tree (*Ilex paraguayensis*), which produces the yerba-mate, the universal beverage of the natives, and the export duty on which, in great part, affords the national revenue of Paraguay, the Government having the exclusive monopoly of the trade.

*Speaking of the arborescence of the Misiones, Mr. White, in his Note-book of a Naturalist, says: "Although I had been accustomed to the vast and imposing forests of Salta, Jujuy, and especially Oran, this region struck me as even more luxuriant, not in such arboreal magnificence, but in universal density and impenetrability; indeed, the exuberance of timber is such that the very names of the trees are as yet unknown to Europeans, and even the majority of those with which they have become familiar are only recognized by their Indian vocables. (Vol. II, p. 421.)

In these magnificent forests are also to be found orange and pineapple groves, as likewise almost every other variety of tree and shrub bearing the delicious fruits of the tropics. I am told that the orange is not indigenous to these regions, but was introduced shortly after the Spanish conquest by the Jesuits, who, until their expulsion by order of Philip II, occupied all this portion of the country. The tree is now, however, universally distributed. Some of the orange groves I have visited in the neighborhood of Villa Occidental, Gran Chaco, and near Asuncion, Paraguay, were indescribably beautiful, the enormous trees being bowed down by the weight of their delicious golden produce, while the ground beneath was covered with the fallen fruit. In the season the oranges are sent by boat-load to Buenos Ayres and Montevideo. They are also used for distillation and for feeding pigs and cattle, besides being largely consumed by the natives. Owing to the enormous quantities produced, they have, however, but little money value in Paraguay, and over in Buenos Ayres, a distance of over 1,000 miles, I have seen them sometimes sold for about 50 cents a bushel.

THE FUTURE OF THE TIMBER TRADE OF THE ARGENTINE REPUBLIC.

I have thus completed a cursory note, which I believe to be reliable, of the several arboreal formations into which the Argentine Republic, with its immense extent from north to south, is naturally divided, beginning with the antarctic forests of beech, which occupy the greater part of Terra del Fuego and the lands adjacent to the Straits of Magellan; noting the vast pineries, as yet wholly undeveloped, which skirt the entire eastern slopes of the Patagonian Andes; following these to where the "Monte" formation marks the development of the hard woods; describing the principal trees of the great subtropical forests of Tucuman, Salta, and Oran; glancing at the wealth of timber which literally covers the immense unexplored regions of northern and southern "Chaco," and finally passing in review the marvelous variety of valuable woods which are found in the thousand miles of territory which lies between the Paraná and Uruguay rivers, called the Mesopotamia of the Argentine Republic. The sketch or compilation is not intended as exhaustive of the subject. It could be very greatly extended, though there are still vast outlying regions of forests about which little, if anything, is yet definitely known. The report, however, is sufficient to explode the generally prevailing idea that the Argentine Republic is entirely a pampa or prairie country and lacking in timber resources, an impression which has gained credence from the fact that the province of Buenos Ayres, which abroad is generally taken for the whole country, is to a great extent destitute of trees; and by the further fact, which seems to be an anomaly, that a very large part of the lumber used here is still imported from the United States.

In spite of this, however, as I have shown, the greater portion of all the northern and northwestern provinces is occupied by forests of timber, which not only in their enduring qualities but in their fineness of fiber, smoothness, and beauty of coloring will compare favorably with those of any country in the world. Indeed, in their susceptibility to the highest degrees of polish, and in the striking varieties and combinations of their tints, it is doubtful if any other country has woods that fully equal them. As I have said, the full extent of this arboreal wealth is not yet known, and we must still wait for a scientific description of a very large proportion of the country which contains these marvelous timber resources. It is evident, however, that in the more or less remote future, when the increasing population of the Argentine Republic has come face to face with these outlying virgin forests, and railways and a more extensive system of river navigation place a greater commercial value upon the work of the woodchopper and the lumberman, the markets of the world, which are just now beginning to realize the undeveloped wealth which these forests represent, will be astonished at the amount of precious woods and valuable timber, suitable for every variety of work, which this country will be able to supply. Europe is now driving the entering wedge in the mammoth timber trees

which skirt the shores of the Upper Paraná, and the ship-loads, which in the last few years have gone forward to the cabinet and fine-furniture manufactories of France and Germany, have so greatly exceeded the expectations as to their value as to make them more anxious for greater supplies. Indeed it will not be surprising if the tables will yet be turned, and even the United States, after having quite exhausted her own forests in supplying the foreign demand, will, in time, be compelled to look to the Argentine Republic for a considerable portion of its lumber.

E. L. BAKER,

Consul.

BUENOS AYRES, June 20, 1883.

BRAZIL.

RIO DE JANEIRO.

NATIVE WOODS.

The magnificence of the forests of Brazil and the variety of the woods they contain would demand a far more extensive treatment of the subject than is admissible in an essentially commercial report. In Amazonas alone, 30 kinds of timber for building and 13 for cabinet-making are said to exist, while the rest of this vast country presents an enormous variety of the most luxuriant trees, useful for their timber as well as for sundry other purposes. If they are not used as they merit it is owing to the scarcity of labor and the want of proper means of communication, making in the most cases the native dearer than the imported woods. I will therefore only mention those commonly employed for building and other uses.

The *peroba*, the *tupinhôa*, for naval construction; the *páo brazil* (Brazil wood), the *cabiuna* (brown rosewood), the *cedro* (cedar), the *massaranduba*, the *sapucaia*, and the laurel are much employed in the lining of vessels. The *páo d'oleo*, the *gonçalo alves*, the black and brown *canella*, the *licurana*, and the iron wood (*páo ferro*) are also used for ship construction.

The *peroba*, the *cedro*, the *vinhatico*, the *páo d'oleo*, the *jacaranda*, the *páo marfim* (ivory wood), the *páo setim* (satin wood), the ebony, the *licurana*, and the *ipé* are used in cabinet and joiner work.

KINDS OF LUMBER IN USE.

The kinds of lumber preferred are the American and Swedish pine and the native *canella* and *peroba* for construction, and the native *vinhatico jacaranda* for cabinet and joiner work.

IMPORTS AND DUTIES.

The imports of pine lumber at Rio de Janeiro were as follows during the years 1890, 1891, and 1892:

From—	1890.	1891.	1892.
	<i>Cub. meters.</i>	<i>Cub. meters.</i>	<i>Cub. meters.</i>
United States	43,788	70,035	42,870
Sweden	13,180	29,196	11,226
New Britain	2,832	4,200	5,142
Germany	1,296	4,401	
Great Britain	90	594	726
Portugal	12	6,384	3
France			9
Australia	6		
Austria			3
Total	61,704	114,810	59,979

The quantities of beams, masts, etc., and cabinet woods imported are not available, but they are not large. The greater part of the beams and masts are imported from the United States and the cabinet woods from England and Germany.

The import duty laid upon foreign lumber is as follows:

Description.	Duties on—	
	American lumber.	All other lumber.
Beams, trunks, masts, spars, etc.:		
Oak and teak—	<i>Milreis.</i>	<i>Milreis.</i>
Up to 20 centimeters in thickness	1.575	2.100
From 20 to 40 centimeters in thickness	3.000	4.800
From 40 to 60 centimeters in thickness	7.425	9.900
Above 60 centimeters in thickness	13.500	18.000
Pine and other unclassified woods—		
Up to 20 centimeters in thickness .....	.832	1.110
From 20 to 40 centimeters in thickness	1.800	2.400
From 40 to 60 centimeters in thickness	3.825	5.100
Above 60 centimeters in thickness	7.087	9.450
The thickness of the above woods, and the diameter of the trunks, masts, or spars is calculated according to the averages of their extremities.		
Boards and planks:		
Mahogany, and other cabinet—		
In planks .....	.113	.156
In thin slabs .....	.507	.675
Oak and teak	20.250	39.000
Pine and other, unclassified	10.575	14.100

Pieces of wood coming already cut, prepared, or adjusted for building houses or sheds, or for any other civil and naval purposes, pay from the United States 33½ per cent, from other countries 45 per cent ad valorem; and any others from the United States 54 per cent, and from other countries 72 per cent ad valorem.

It is impossible to reduce the duty into United States currency owing to the rapid fluctuations in the value of the Brazil milreis.

PRICES.

The prices of lumber here, as elsewhere, are subject to the law of supply and demand and, it may be added in this case, to the fluctuations

in the value of the milreis. The market prices, duty paid, are to-day for pitch pine, 65 milreis per dozen planks, 14 feet by 9 by 3 inches; white pine, 205 reis * per foot; Swedish pine, 60 to 70 milreis per dozen planks, 14 feet by 9 by 3 inches. These prices are subject to 6 per cent discount. To-day's exchange $9\frac{3}{4}$ pence per milreis, or say $18\frac{3}{4}$ cents United States currency 90 days on London. The market is actually reported dull, with weak demand and the prices low. The stock of timber, paid for at more favorable rates of exchange, is large, and retailers only cover immediate wants in view of the possibility of an amelioration of exchange.

CLIMATE.

Brazil extends to the north beyond the equator and to the south still more beyond Capricorn, and its climate is naturally varied. Hot weather predominates, but is modified according to the different latitudes in which it makes itself felt, and is influenced by the position, but principally by the elevation, of the land. It is intense under the equator (on the Amazonas), much less severe in the states of the center, mitigated on the coast by regular breezes, and progressively reduced to a mild temperature in the most southern states, but specially in Rio Grande do Sul. There are two seasons in all that part of the country from Amazonas southward, inclusive of the state of Sao Paulo, the dry and the rainy, while in the states of Parana, Santa Catharina, and Rio Grande do Sul, four seasons are distinguished, but not so strongly characterized as in the United States. In Minas-Geraes, Matto-Grosso, and Goyaz, the climate differs according to the elevation and the latitude of the various parts of these immense states.

GENERAL BUILDING.

General building, it is feared, will not be carried on as extensively during the next few years as was the case since 1889. Ship building is of no special consequence in this country.

The length of railroads in construction, under study and to be studied, was January 1, 1892, in kilometers:

Roads.	In construction.	Under study.	To be studied.	Total.
Railroads—				
Belonging to the Union.....	964	595	485	2,044
Subsidized by the Union.....	2,048	5,965	12,337	20,350
Not subsidized by the Union.....	1,174	2,132	6,731	10,037
Total.....	4,186	8,692	19,553	32,431

* There are 1,000 reis in the milreis.

As will be observed by the statistical figures of the imports of Rio de Janeiro for the three years from January 1, 1890, to December 31, 1892, American lumber is taking the lead over all other foreign lumber; the only means to increase the lumber trade of the United States with this country would, therefore, be to equalize, as much as possible, ocean freight rates with the rates from European ports.

JOHN T. LEWIS,
Vice Consul-General.

RIO DE JANEIRO, *April 24, 1894.*

CHILE.

NATIVE WOODS.

The native woods of Chile are rauli, roble, cypress, luma, lingue, laurel, alamo, and alerce.

The two most important and most used of these are rauli and roble; the first, resembling our cedar, is used mostly in the manufacture of furniture and also extensively in interior finish for buildings, it being susceptible to a high degree of polish, pliable, and easily worked by machinery.

The roble is the most plentiful of all the woods here, and corresponds to our oak, being, however, much finer grained, harder, and consequently offers more resistance to machinery. The specific gravity of this wood precludes the possibility of its being rafted, which necessitates handling by rail; this in a measure will always prevent its competing to any great extent with lumber imported from the United States, as the forest section is very mountainous and, consequently, it is difficult to get the logs to the mills and the lumber from the sawmills. This wood is better adapted to framework than any other purpose.

The one other wood worthy of mention is the cypress, which is well adapted to the manufacture of railway ties, and is principally used for that purpose, the supply, however, is small.

KINDS OF LUMBER MOST USED.

The kinds of lumber most used are Oregon pine and the native rauli and roble, the Oregon pine being most generally preferred.

IMPORTS.

The quantities of lumber imported during the last three years were as follows:

Kinds and whence imported.	1890.	1891.	1892.
Cabinet woods:			
Great Britain.....square feet..	2,409	8,000	220
Germany.....do.....	588		
France.....do.....			
United States.....do.....	2,072,648	46,273	29,526
Total.....do.....	2,075,625	54,273	29,746
Dressed and matched flooring, ceiling, etc.:			
Great Britain.....do.....	4,449		993
Germany.....do.....			
France.....do.....			
United States.....do.....	488,647	739,876	1,161,831
Total.....do.....	493,096	739,876	1,162,824
Rough, for general construction:			
Great Britain.....do.....	2,312	244,948	75,942
Germany.....do.....			
France.....do.....	22,033		4,467
United States.....do.....	5,755,217	3,811,010	9,862,555
Total.....do.....	5,779,562	4,055,958	9,942,964
Veneering:			
Great Britain.....kilograms..	1,748	3,226	653
Germany.....do.....	5,251	185	2,438
France.....do.....	219		
United States.....do.....			1,896
Total.....do.....	7,218	4,411	4,987

DUTY.

The principal obstacle in the way of increasing our trade with Chile is the import duty, which is on rough lumber 15 per cent ad valorem; dressed and dressed and matched, 25 per cent; veneering, 35 per cent; and the fine woods for cabinetwork free. I may add that the present system of appraising makes the import duty on rough lumber \$10.47, and on dressed and dressed and matched \$19.46 per 1,000 feet, Chile paper currency (a dollar at the present rate of exchange being worth 25 cents United States gold).

PRICES.

The prices of lumber are as follows: Oregon pine, rough, \$110 per 1,000 feet; dressed and matched, \$130, and half-inch ceiling, \$80; roble, framing, \$70; and rauli dressed and matched, \$100.

It is probably safe to say that the American exporter will always find a market in Chile, as the forests, which cover an estimated area of 90,000 square miles, consist principally of roble, which, as I have previously mentioned, is not calculated to come in strong competition with American lumber.

The product of the sawmills in most instances is transported by carts to the railroads for shipment, and as the roads are very bad, lengths of roble longer than 24 feet are seldom sawed. As the rauli tree is a very short one, the lengths are never longer than 12 or 14 feet.

CLIMATE.

A description of the climate in this consular district would be valueless in this connection, as the lumber section begins at Malleco, about 400 miles south, and extends to the Straits of Magellan. The average rainfall there is 106 inches, and the climate cold and disagreeable eight months in the year, while here the rainfall is only 16 inches and the climate is mild, comparing favorably with that of Los Angeles, Cal.

GENERAL BUILDING.

Chilian cities—Santiago, Valparaiso, and Concepcion—are growing rapidly, especially the two former, which are in this consular district. The demand for lumber is brisk and daily increasing. There is no ship-building in Chile, and at present railway construction is at a standstill.

JAMES M. DOBBS,

Consul.

VALPARAISO, May 1, 1894.

COLOMBIA.

BARRANQUILLA.

NATIVE WOODS.

Colombia is a vast lumber producing country; in many portions of the interior huge forests, many hundreds of miles square, cover its face, representing woods of different values.

To name all the woods of Colombia would be to make an extensive catalogue. The principal, however, are cedar, guayacan, carreto, roble, campano, mahogany, ceiba, and brazil. They may be classified as follows:

Cedar.—This is the most common wood in use. It is easily worked, and possesses a bitter quality, which is a preventive against an insect called the *comejen*, a species of wood ant, very destructive to many other kinds of wood. In house construction, excepting for flooring beams, cedar is universally used.

Guayacan.—This is the *lignum vitæ*, and is very hard. It is used principally for railroad sleepers, and thousands are shipped to Cuba, to the Isthmus of Panama, and Central America. This wood resists the penetration of spikes, and holes have to be bored before they can be driven. It is of dark color, with occasional light streaks running through it.

Carreto.—This is a light-colored wood, also very hard, and is destructive to carpenters' tools. It is used in timbers for construction, the ends which enter the walls being usually charred or dipped in coal tar, as a

preventive against rot. Timber of Carreto will last for centuries. Being a handsome wood, capable of receiving a fine polish, it is used in furniture, such as presses, counters, trunks, and household objects.

Roble.—This is a softer wood, of light color, and very tough. It pertains to the family of the oak. It is used to a considerable extent in the manufacture of furniture.

Campano.—Trees of this wood grow to an immense size and height, and are hewn and dug out into canoes and boats of very considerable dimensions. A well-made native canoe, sometimes 90 feet in length, is really a work of art.

Mahogany.—This is a handsome wood of rich, dark color, but is inferior in grain to that of Santo Domingo or Honduras. It is not extensively used.

Ceiba.—This is a wood of rather a light rosy tint, and is used in the manufacture of household articles.

Brazil.—This tree grows in some parts of Columbia.

Fustic.—The common fustic of commerce grows extensively in the interior.

The working of timber into beams and boards by native workmen is usually accomplished with the old-fashioned cross-cut saw, and a species of uncouth pattern of the old Spanish ax.

KINDS OF LUMBER USED.

As to "what kind of lumber is preferred," that entirely depends on the use to which it is put; as cedar for house construction, carreto for timbering, and guayacan for sleepers.

IMPORTS AND DUTY.

No lumber is imported from any other country than the United States

Formerly quite a quantity of yellow pine was brought from some ports of the Southern States, in sailing vessels entering the river, but of late the very high rate of exchange (205 per cent premium), has nominally stopped importation. When timbers of great length are required yellow pine meets the want.

Undressed lumber pays no duty; dressed lumber (a board planed and tongued and grooved), pays $1\frac{1}{4}$ cents per kilo.

CLIMATE.

The climate of this consular district is delightful. During the October rain and December "northers," I have known the thermometer to go as low as 74° F., while during the warmer season, in the most favored part of this city—for instance where this consulate is located—I have never seen it rise above 88°.

GENERAL BUILDING AND PRICES.

There is neither shipbuilding nor railroad construction in this district. To-day rough lumber may be quoted at 18 cents per superficial foot; dressed lumber at 20 cents, Colombian paper.

The outlook is not favorable to an increased trade in foreign lumber.

E. P. PELLET,
Vice and Deputy Consul.

BARRANQUILLA, *April 25, 1894.*

COLON.

NATIVE WOODS.

There are no native woods here for building purposes, the villagers being the only ones who employ rough native sticks in the erection of their huts.

KINDS OF LUMBER USED.

The kinds of lumber used are yellow-pine scantlings and timbers and white-pine boards, planed or rough, in almost equal proportions.

A small quantity of California red pine is imported by the Panama Railroad Company, and used exclusively in the reconstruction of their cars.

IMPORTS OF LUMBER.

All the lumber used here is imported from the United States.

DUTY AND PRICES.

There is no import duty on lumber entered at this port.

The prices of lumber vary very much on account of the constant fluctuation of exchange. It is, however, safe to quote the following rates for the present in Colombian silver per 1,000 feet,* viz:

Yellow pine, \$70 to \$75 for average sizes; for heavy timbers special prices in proportion. White pine, \$70 to \$80.

CLIMATE.

The climate of this district from the middle of December to the middle of March is dry with prevailing north winds; the rest of the year it is rainy and damp.

* The Colombian silver peso = 46.5 cents on April 1, 1894.

GENERAL BUILDING.

At present there is very little house building going on, on account of the depressed state of affairs in general, and there is not now, nor has there ever been, any shipbuilding here.

The Panama Railroad Company has 47 miles of laid track between Panama and this city, but there is no railroad being built within this consular district.

J. L. PEARCY,
Consul.

COLON, *January 19, 1894.*

DUTCH GUIANA.

NATIVE WOODS.

The following are the principal woods of Dutch Guiana: Jawalidani, kakaralli, wallaba, blackheart, greenheart, accouribroad, purpleheart, ironwood, cabacalli, mimusops (balata), cedar, lancewood, simiri, mora, salic, deteruca, lignum-vitæ, and mahogany.

IMPORTS, DUTY AND PRICES.

The annual imports of lumber amount to about \$20,000, viz: From the United States, \$15,000; from British Guiana, \$5,000.

The duty on lumber is as follows: Pitch pine, 80 cents per cubic yard; white pine, 60 cents per cubic yard; planks, 24 feet or more, 60 cents per hundred; planks under 24 feet, 40 cents per hundred.

Present price of lumber: Pitch pine, \$48 per thousand; white pine, \$40 per thousand.

CLIMATE AND PUBLIC BUILDING.

The climate of Dutch Guiana is divided into three seasons, two wet and one dry. The "small" wet season commences in December and ends in April. The "great" wet season runs from April to July, and the dry season from July to December.

The thermometer averages about 83° F. The average annual rainfall is 95 inches. For the last ten years it has rained, on an average, on 204 days in each year.

There is neither shipbuilding nor railroad building in this colony.

H. LOVEJOY,
Vice-Consul.

PARAMARIBO, *February 23, 1894.*

ECUADOR.

NATIVE WOODS.

The following table exhibits a great variety of valuable woods found in Ecuador, in the province of Guayas alone, and particularly about Chougan, Balzar, Fama, and Puná.*

The table shows the local names, the color, length of log which may be cut from a tree, and the number of years each is calculated to endure.

Several of these woods are unique cabinet woods. I have indicated the general uses for which they may be severally employed, and in another place some further particulars about some of them.

As far as I can find out, there is no timber here like our pine which can be used to make the light planks in general use in house building, etc. Consequently, pine lumber is imported here from Mississippi, shipped from the port of Biloxi.

List of native woods.

Local names.	Color.	Size. ^a	Durability.
		<i>Feet.</i>	<i>Years.</i>
Fine cabinet woods:			
Roble	White	20	25
Figueroa	Red	20	25
Cabicu	do	30	100
Cedro	do	30	16
Guasango	do	10	Everlasting.
Caoba	do	25	16
Caracoll	White and yellow	25	12
Suche	Gold	25	12
Posts and underground woods:			
Guayacan	Coffee	30	50
Modera Negra	Black	30	50
Alganobo	Coffee	15	Everlasting.
Matasama	Yellow	20	50
House-construction woods:			
Moral	do	45	50
Armarillo	do	45	50
Guachapeli	Red	25	50
Laurel	Dark	25	50
Colorado	Red	55	14
Mangle	do	55	14
Bantano	Yellow	20	25
Caacol	White	20	30
Seca	Yellow	15	30
Pechiche	White	15	30
Gauyabo	do	30	30
Guion	Red	15	14
Coquinto	White	15	30
Canelo	Yellow	35	40
Balsamo	Red	45	50
Raft woods, Balsa	White	60	4
Ship timber, Maria	Yellow	65	30

^a Size is the length of a log which can be cut from a tree.

The foregoing woods are all found in the province of Guayas, in which Guayaquil is situated.

Of the woods in the provinces of Esmeraldas and Monchi, on the upper coast, and of those in the southern provinces of Del Oro and

* Consul-General Dillard acknowledges his indebtedness to Senor Don Ignacio Robbs for valuable statistics used in the preparation of this report.

Toja, I have no sufficient information (the woods named are most likely found in all those provinces), nor have I any information about the woods of the Cordilleras, nor of those in the regions known as the Ariente—the virgin forests of the upper Amazons.

Guayacan.—This valuable wood endures alike in the open air as under ground. On account of the frequency of earthquakes, most of the houses are built upon great posts, which are sunk deeply into the ground and are extended to the second story of the building. The bottom parts of these posts are of guayacan, which extend 4 or 5 feet above ground and the upper part of the posts are of mangle, which can be renewed when it decays. The two parts of the posts are attached together by a most ingenious mortise joint. The guayacan is used for all purposes where wood is used under ground or in water.

Mangle.—This wood is in universal use—for the upper part of posts and for all the joists, plates, and studding of houses. Its lasting quality differs with its situation. In the shade above ground it endures, say fourteen years, and in the ground, sixteen years, but in the open air, exposed to the sun, it lasts only three or four years.

Balsa.—The renowned balsas (or rafts) (the most unique water craft in the world) are constructed of this wood, hence its name. This craft (made of balsa logs, stripped of the bark and fastened together with vines) has always been in use by the Indians on this coast. The tradition is that the progenitors of the Indians, who inhabited this country before the Incas appeared, as well as at the time of the Spanish conquest, reached the shores of Ecuador in balsas—most probably from the Isthmus of Panama. At all events the balsa has, from time immemorial, been the water craft of the Indians of Ecuador. They float up and down the rivers and bayous (esteros) with the tide, transporting their produce and returning home. Some build their cabins on their balsas, which thus become their only homes. They do not fear to go to sea in their balsas, for it is impossible to sink them.

The balsa wood is very white, soft, strong, and floats like a cork.

I regret that my lack of information prevents me from going into particulars about others of the most rare and valuable woods mentioned in the table. I write only of those which I see in use every day.

KINDS OF LUMBER USED.

The kinds of lumber preferred are the guayacan, mangle, and imported pine—each for its particular purpose.

Bamboo.—The bamboo is of universal use for ceilings in house building. The matter in the joints being carefully cut out, the cane, from 4 to 6 or more inches in diameter, is flattened out and made like a plank. It not only serves all the purposes of the best quality of lath, but is usually the only weatherboarding of the rear of houses. It is also the flooring material for respectable country houses and for all native cabins.

IMPORTS AND PRICES.

The lumber imported at Guayaquil during the year 1893 amounted to 1,600,000 feet, all from the United States and all dressed lumber. E. Rohde & Co. were the importers. Very little lumber is imported at the other ports of the Republic.

DUTY AND PRICES.

The import duty on lumber is one-half centavo (say one-fourth cent, American gold) per kilogram, plus 30 per cent ad valorem.

Lumber sells in Guayaquil at from $7\frac{1}{2}$ to 9 centavos per foot, say \$37.50 to \$45 per thousand.

CLIMATE.

This country is called Ecuador because the equator covers it—Quito, the capital, being almost on the line, and Guayaquil being scarcely two degrees south of it. The vegetation, however, is not tropical; at least it is not tropical in the great valley of the Guayas. The climate is hot, but from May to December, the dry season, the heat is tempered by an almost constant southwest breeze, the Chonduy, and by clouds. For months at a time, the sun will not be seen, although during that time, it does not rain a drop. From December till May, the rainy and sickly season, when it is not raining the sun frequently comes out with great force right overhead, but during the dry season, there are weeks of weather which one word will probably describe—delicious.

GENERAL BUILDING.

Houses are constantly being built in Guayaquil, but the amount of imported lumber used in their construction is not very great. Ship-building is limited to small craft. The river steamboats and the launches used in the port are generally imported from the United States and put together here.

Railroad building, it is thought, will soon begin. There are only about 50 miles of railroad in operation in the Republic—that which runs from Duraú (across the river from Guayaquil) to Chimbo, at the foot-hills of the mountains. There is a short line in course of construction at Mochala, and a survey has recently been made for the extension of the line from Chimbo towards Quito. This is a great undertaking which awaits capital and enterprise.

GEO. G. DILLARD,
Consul-General.

GUAYAQUIL, *April 24, 1894.*

DANISH WEST INDIES.

NATIVE WOODS.

The following list of woods grown in the Danish West India Islands is given by Mr. Carl Berg:

<i>Acacia macrantha.</i>	<i>Maytenus laevigatus.</i>
<i>Avicennia nitida.</i>	<i>Picræna excelsa.</i>
<i>Beurreria succulenta.</i>	<i>Pictetia squamata.</i>
<i>Bucida buceras.</i>	<i>Pimenta vulgaris.</i>
<i>Bumelia euncata.</i>	<i>Piscidia erythrina.</i>
<i>Condalia ferrea.</i>	<i>Randia acubeadæ.</i>
<i>Ademantaria Pavoniana.</i>	<i>Ranolfia nidita.</i>
<i>Mamea Americana.</i>	<i>Swietunia Mahogeni.</i>
<i>Capparis cynophallophora.</i>	<i>Thespesia populnea.</i>
<i>Colubrina reclinata.</i>	<i>Thevetia nevifolia.</i>
<i>Creocandia arylete.</i>	<i>Zanthoxylum flavum.</i>
<i>Eugenia floribunda.</i>	<i>Zanthoxylum Clava Herculi.</i>
<i>Engenia pallens.</i>	<i>Zanthoxylum Ochroxylum.</i>
<i>Erithalis fructicosa.</i>	<i>Croton.</i>
<i>Exterme caribean.</i>	<i>Acacia nudiflora.</i>
<i>Coccoloba punctata.</i>	<i>Guafiacum officinale.</i>
<i>Coccoloba niven.</i>	<i>Canella alba.</i>
<i>Coccoloba uvifera.</i>	<i>Chrysophyllum microphyllum.</i>
<i>Jacqvia arborea.</i>	<i>Psidium guava.</i>
<i>Libidibia coriaria.</i>	<i>Sapota sideroxylon.</i>
<i>Leucaena glauca.</i>	

Besides the above-mentioned woods, which are used for building purposes and furniture (botanical names only are given), there can be found about 350 varieties that are used for medicinal and other purposes.

KINDS OF LUMBER USED.

The principal woods used here are pitch pine, white pine, and spruce, the first being preferred for housebuilding, because ants, which destroy the spruce in a few years and the white pine in time, do not touch hard pine. White pine is used for house trimmings. Spruce is used but little, if at all. Southern pine and oak, in small quantities, are used for the repair of ships which touch here in distress. Nearly all these woods are imported from the United States.

The native woods are generally of small growth, fit for building boats, wharves, and small vessels. Furniture is also made of native woods.

IMPORTS OF LUMBER.

The following statement shows the imports of lumber at St. Thomas for the years ending March 31, 1891, 1892, and 1893:

Whence imported.	1891.		1892.		1893.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	<i>Feet.</i>		<i>Feet.</i>		<i>Feet.</i>	
United States.....	634, 218	\$11, 035	407, 701	\$5, 611	259, 133	\$5, 619
Canada.....	29, 455	458	107, 368	1, 496	185	87
British West Indies.....	5, 644	169	2, 700	71	221	50
Other countries.....	1, 116	89	1, 175	251	125	28
Total.....	670, 433	11, 751	519, 034	7, 429	259, 664	5, 784

DUTY AND PRICES.

The import duty is 3 per cent on declared invoice value of all goods.

Pitch pine is sold at \$30 to \$35, and white pine from \$35 to \$40 per 1,000 feet. Spruce and oak are imported by ship carpenters solely for their own use in repairing ships, etc., and are not for sale.

CLIMATE.

The climate of the Danish West Indies is in general healthful, the islands being situated in latitude 17° to 18° north and nearly in the strength of the northeast trade winds, which blow nearly the entire year, the thermometer in the winter months ranging from 70° to 80°, and in summer, 80° to 90° F.

GENERAL BUILDING.

All the large houses here are built of brick and stone, with wood floors, windows, doors, etc. Small houses are built entirely of wood, with stone foundation about 10 feet high. Small fishing boats and row boats are built of the native woods. No large vessels are built here. There are no railroads within my consular district.

EXTENSION OF LUMBER TRADE.

As will be seen from the statement of imports, the United States leads all other countries.

I can offer no suggestions, as I see no means of further extending the trade of American lumber in these islands.

J. H. STEWART,
Consul.

ST. THOMAS, WEST INDIES, *March 9, 1894.*

ASIA.

BRITISH ASIA.

CEYLON.

NATIVE WOODS.

There are 156 varieties of useful timber classified in Ceylon, as will be seen by the inclosed publication, List of the Principal Timber Trees in Ceylon.*

IMPORTS OF LUMBER.

The timber (all wood is called timber here) imported in 1892 was teak logs from Burma, to the value of \$112,600; and from Great Britain, creosoted pine or fir railroad sleepers, value, \$7,000. The quantities are unknown.

All timber is free of duty.

PRICES.

The timber mostly used here for house building and furniture making is sold as follows: Teak, \$1.23 to \$1.33 per cubic foot, in planks and scantlings; jack wood and nadun 1-inch thick planks, from 6 inches to 24 inches wide, from 5 to 10 cents per square foot; scantlings, from 58 cents to \$1 per cubic foot; logs, from 42 to 50 cents per cubic foot; satinwood, in round logs, purchasable from Government, 33, 55, and 67 cents per cubic foot, and for satinwood, sawn to planks, 11 cents per cubic foot are added to the log prices. Ebony, in logs, \$25 to \$45 per ton, according to quality.

CLIMATE.

The climate is humid. The rainfall on the west coast is about 100 inches per annum, and amongst the hills of the interior it is sometimes upwards of 250 inches. The east coast is somewhat dryer, say 30 to 110

*Filed in Bureau of Statistics.

inches per annum, but imported lumber of any description is not wanted there, as the forests abound in ebony, satinwood, and various other valuable timber trees.

For full particulars of rainfall, see Appendix B,* and as regards temperature, the heat is absolutely and always tropical.

GENERAL BUILDING.

Wooden houses are very rarely built in Ceylon; most of the better-class habitations are of brick, and wood enters into their construction only for the frames of the roof, doors, and windows, and occasionally for upstairs floors—teak, jack, and satinwood are mostly used for these purposes, and there is no wood in the United States that could be profitably substituted for them.

There is no shipbuilding and very little railroad building; and what with native woods, and creosoted pine, for sleepers, and teak for carriages, all of the railroad demands for lumber are fully supplied. There is in fact an abundance of valuable timber always for sale; say, ebony and satinwood, which, if properly handled, would pay for exportation to the United States.

W. MOREY,
Consul.

CEYLON, *January 27, 1894.*

SEASONING TIMBER.

[Extract from the publication entitled *List of the Principal Timber Trees in Ceylon*, by A. Mendis Lenanayke. Translated by Consul Morey.]

To season timber so that it may become one-fifth more durable than in its ordinary state, observe the following instructions of Thomas Tredgold, esq., civil engineer, Fellow of the Institution of Civil Engineers, etc., of Newcastle-on-Tyne:

When timber is felled, the sooner it is removed from the forest the better; it should be removed to a dry situation, and placed so that the air may circulate freely about each piece, but it should not be exposed to the sun and wind. Square timber does not rift or split so much as that which is round; and when the size of the tree will allow, if beams are to be used the full size of the tree, it would be a good preservative against splitting to bore them through from end to end, as is done in a water-pipe. It is irregular drying which causes timber to split, and this method assists in drying the internal part of the beam without losing much of its strength, and at the same time it would lighten it considerably.

On account of the time required to season timber in the natural way, various methods have been tried to effect the same purpose in a shorter time. Perhaps the best of these is to immerse the timber in water as soon as it is cut down, and after it has remained about a fortnight in water, but not more, to take it out and dry it in an airy place.

For protecting timber against white ants, to every gallon of water add 3 ounces of croton taglium seeds, 3 ounces margosa bark, 3 ounces sulphur, 2 ounces of blue vitriol. Immerse the timber until it ceases to absorb the water, and afterwards take out and dry in an airy situation.

INDIA.

NATIVE WOODS.

The most notable native woods for timber are the teak (*Tectona grandis*) and the sal (*Shorea robusta*). The teak is indigenous to both peninsulas of India. In certain localities the supply may be considered inexhaustible.

Teak.—Teak reaches a girth of 10 to 15 feet, and has a clear trunk of 70 or 80 feet to the first limb. In British Burmah teak exceeds in value all other trees combined. The sapwood of teak is white and small. The heartwood, when cut green, has a pleasant and strong aromatic fragrance and a beautiful dark golden color, which on seasoning soon darkens into brown, mottled with darker streaks. The timber retains its fragrance to a great age, the characteristic odor being apparent whenever a fresh cut is made. Teak is a wonderfully hard wood, exceedingly durable and strong, and, once seasoned, does not split, crack, warp, shrink, or alter in shape. It owes its chief value to its great durability, which is ascribed, probably with justice, to the circumstance that it contains a large quantity of fluid resinous matter, which fills up the pores and resists the action of water. At the Karli caves, near Poona, there is teakwood work 2,000 years old which seems perfectly good at the present day. Teak lumber from different localities varies greatly in appearance, weight, and strength. Teak weighs about 40 pounds per cubic foot. It is used in India for construction, bridgemaking, sleepers, and for manufacturing furniture. It is exported to Europe chiefly for building railway carriages, for shipbuilding, for making decks and lower masts, and for the backing of armor plates on ironclads. It is peculiarly useful for the latter purpose owing to the resinous matter which it contains, acting as a preventive against rust, the wood neither affecting the iron nor being affected by it. It is far superior to oak in this respect. The trade in teak is very large and important, and, notwithstanding the competition of other materials, shows no signs of diminution.

Sal.—The sal tree (*Shorea robusta*) is one of the most valuable timber trees in India. The sapwood is distinct, is small in amount, and not durable. The heartwood is brown in color, finely streaked with dark lines, coarse grained, hard, strong, and tough, with a remarkably cross-grained and fibrous structure. The fibers of successive concentric circles do not run parallel but at oblique angles to each other, so that when the wood is dressed the fibers appear interlaced. It does not season well, but splits and warps in drying, and even when thoroughly seasoned absorbs moisture with avidity in wet weather, increasing one-twenty-fourth in bulk and correspondingly in weight. During the process of seasoning it dries with great rapidity on the surface, with superficial flaws from unequal shrinkage. Sal, when thoroughly

seasoned, stands almost without a rival as a timber for the qualities of strength, elasticity, and durability, which qualities it retains, without being sensibly affected, for an immense length of time. The average weight of the seasoned sal is about 55 pounds to the cubic foot. This timber is the one most constantly used in Northern India. It is in quest for beams, planking, railings for bridges, doors and window posts for houses, for gun carriages, for the bodies of carts, and, above all, for sleepers for railways. In Assam it is used for boat building. Owing to the fact that when unseasoned it is not floatable, difficulty is experienced in getting the lumber out in the log. This is overcome, however, by floating the logs either with the assistance of floats of light wood or with bamboos.

Artocarpus.—The *Artocarpus chaplasha* grows in Burmah and Eastern Bengal. The wood is brownish-yellow, moderately hard, even-grained, tough, durable, and seasons well. It seems to get harder and heavier as it gets older. It is used for various purposes, and is very superior for use under water.

Bamboo.—The bamboo, while in reality a grass, forms the most important portion of the minor forest produce of all forest divisions and one that increases in value every year. It would occupy a volume to enumerate by name all the uses to which the native bamboo stems are put. To the inhabitants of the regions where the bamboo luxuriates it affords all the materials required, not only for the erection but the furnishing of the ordinary house. Certain species are more serviceable for posts, others are more adapted for basket work, but with one or two species every requirement can be met. It is cut up and split into bands of every size and thickness, so as to allow of its being manufactured into mats of any degree of quality, from the finest to the coarse mats so extensively used for walls in housebuilding. Hollow bamboos are cut at the nodes lengthwise, and then opened out and flattened into slabs, which may be used for the seats of chairs, tops of tables, beds and other articles of furniture. The large Karen houses, each of which constitutes a village in itself, being large enough to contain 200 or 300 persons, are constructed entirely of bamboo. The greater part of the people of eastern India and the Malay peninsula live in bamboo houses. Bridges are built of bamboo in all parts of India. If in good condition they may be ridden over with perfect safety. The larger hollow species are used for aqueducts, water pails, pots, cups, and other vessels. A single joint of a green bamboo is often used for boiling the family dinner of rice. All sorts of agricultural instruments are also made of bamboo and the appliances for spinning cotton and wool, and also for reeling silk, are often constructed entirely of this material. The Assamese make fishhooks of bamboo.

Teak and sal are the most important sources of lumber, while bamboo is used more than all kinds of timber combined, for many of the uses to which lumber would be applied in other countries. Teak is preferred in all cases where permanency is required.

IMPORTS OF LUMBER.

The imports of lumber at Calcutta, for 1892-1893, were as follows from the different countries:

Whence imported.	Cubic tons (50 cubic feet).	Value.
Teak:		<i>Rupees.*</i>
Zanzibar	1	29
Ceylon	20	1,540
Siam	2,594	173,613
Straits Settlements	43	8,050
Total	2,708	183,232
Other timber:		
United Kingdom	1,499	109,291
Austria	22	1,526
Belgium	3	245
Germany	118	6,641
Italy	2	153
Norway	2	225
Sweden	510	27,336
Mozambique	86	3,350
Zanzibar	483	15,041
Madagascar	27	550
Natal	25	400
South America	5	170
United States	1,697	88,973
Ceylon	2,779	89,197
Hongkong	10	1,000
Java	9	240
Makran and Sonmiance	22	1,117
Straits Settlements	4,250	179,909
Siam	4	261
Sumatra	8	170
Australia		36
Total	11,561	525,841
Grand total	14,269	709,073

* On April 1, 1894, the value of the rupee, according to the U. S. Treasury, was 22.1 cents.

DUTY AND PRICES.

There is no import duty on lumber from any country.

In the Calcutta market the prices of lumber per cubic ton (50 cubic feet) are as follows: Teak, 85 to 100 rupees (\$18.78 to \$22.10); sal, of superior quality, 125 to 150 rupees (\$27.62 to \$33.10); sal, of inferior quality, 60 to 75 rupees (\$13.26 to \$16.75); Oregon pine, 50 to 60 rupees (\$11.05 to \$13.26).

CLIMATE AND GENERAL BUILDING.

The climate of India is tropical. Up country it is hot and dry, and in Bengal and eastern India, hot and damp.

But little lumber is used in building in Bengal, such as is used being principally teak. Other timber would not be safe on account of the white ants and borers, which eat out and honeycomb other timber in every direction. The walls of the houses of the better classes are of brick, with teak beams, the roofs being cemented. The native houses are more cheaply built with walls of bamboo stems and matting, plastered with mud, and thatched roofs.

The shipbuilding of India is practically of no moment. In railroad building, there were opened to traffic last year 395½ miles of line. The total railway mileage of India is 20,272½. The officials of the Indian railways endeavor, wherever possible, to use iron for crossties and for construction purposes, on account of the ravages of the insects. Various creosoted and otherwise prepared woods have been tried, but have not given much satisfaction.

EXTENSION OF LUMBER TRADE.

On account of the high freight rates, it does not pay to move lumber about much in India, and it does not appear probable that much American lumber could be used in the interior. A small quantity can be and is used in the seaboard cities, but the quantity could not, I think, be very greatly increased. One or two shipments of Oregon pine have been made to Calcutta, but a small amount gluts the market, and it requires a considerable time to work it off. Iron beams are to some extent supplanting even the native teak. There are some thirty registered stock companies, and a few individuals, running sawmills in India. The value of their output is estimated at 12,031,111 rupees (\$2,656,765). To this must be added about the same quantity of lumber got out by hand. The mills employ about 10,000 persons.

VAN LEER POLK,
Consul-General.

CALCUTTA, *March 7, 1894.*

CHINA.

AMOY.

NATIVE WOODS.

The native woods are nearly the same as in the United States, and include pine, oak, cedar, cherry, chestnut, ash, whitewood, and locust. Native woods well known in the United States are bamboo, teak, ebony, ironwood, boxwood, and camphor wood.

KINDS OF LUMBER USED.

Pine is the favorite lumber, especially in the form of "Foochow poles," which are long trunks, stripped of bark and branches. Almost equally popular is the bamboo. Teak is used, wherever the expense will allow, in house and naval construction, on account of its resistance to decay, to white ants, and to boring insects.

IMPORTATIONS.

It is very difficult to obtain figures as to the importation of lumber. So much comes into port in the form of dunnage, ballast, loans, and spare pieces—none of which are recorded by the customs—that no accurate estimate can be made. Thus, the Amoy customs reports of 1892 give the imports of hard-wood plank at 4,507, valued at \$2,375; imports under “sundries” of lumber are not specified. In the market we have camphor wood in trunks and planks from Formosa, poles and planks from the interior and from Foochow, hard woods from the Philippines, Borneo, the Straits Settlements, and South China. Upon the whole the importation of lumber can not be very large.

DUTY.

The duty on imported lumber and timber is as follows:

Kinds.	Duty.
Musts and spars:	
Hard wood, not over 40 feet.....each..	\$4. 00
Hard wood, not over 60 feet.....do..	6. 00
Hard wood, over 60 feet.....do..	10. 00
Soft wood, not over 40 feet.....do..	2. 00
Soft wood, not over 60 feet.....do..	4. 50
Soft wood, over 60 feet.....do..	6. 50
Beams,* hard wood, square, not over 26 feet and 12 inches square.....do..	. 15
Piles, poles, and joists.....do..	. 03
Kranjee wood (35 by 1.8 feet by 1 foot).....do..	. 80
Planks, hard wood (not over 24 feet by 12 by 3 inches).....do..	. 35
Planks, hard wood (not over 16 feet by 12 by 3 inches).....do..	. 02
Planks, teak.....per cubic foot..	. 035
Redwood.....per 135 pounds..	. 11

Soft wood planks, 6 inches and over in thickness, 5 per cent ad valorem.

* Five per cent ad valorem or optional.

CLIMATE.

The climate of Amoy is tropical and unhealthy. The city is a nest of smallpox in winter and of cholera in summer. The weather is never cold. Snow has fallen once in fifty years. In summer the thermometer is at about 85° F. for five months. In winter it averages about 60° F. The hygrometric conditions are peculiar. Sometimes the air is so dry as to be unpleasant, while at others it is saturated with moisture. In the latter state sugar and salt, if exposed to the atmosphere, become liquid, woollens become wet and moldy, leather is devoured by fungoid growth, and floors, walls, and ceilings are covered with water.

Wood shrinks considerably in the dry season, and expands rapidly and powerfully in the wet season. For this reason doors and windows either rattle in their casings or are opened with great difficulty.

GENERAL BUILDING.

Although the housebuilder of China, especially Southern China, uses brick, tile, stone, and cement in every possible manner, even going

so far as to construct 95 per cent of all floors of these materials, and avoids the use of wood as far as he can, there is still a large and ever-increasing trade in lumber. It is used in architecture, shipbuilding, furniture-making, box-making, coffin-making, church decoration, and theater-framing. It is not used in house-framing or bridge construction by reason of storms and white ants; nor in sheds, wharves, plank roads, fences, and railings.

Building never stops. Chinese houses are not made to last. Not one in a thousand will last thirty years unless constantly repaired. They contain from two to forty rooms each and are usually one story in height. The foundations are cut granite; the walls cheap brick, covered with mortar and kalsomined; the roof is tiled with red tiles; the floor is tiled or bricked; the casings of doors and windows are generally granite; the windows are barred with wooden, iron, or granite bars; the doors are made of planks, with heavy cross pieces; the roof and beams are made of poles; the mantelpiece is brick and mortar; the kitchen, stone; benches, brick; bath tub, cement or earthenware; and the washboards are stone. When washtubs are used they are of coarse earthenware. The settees are usually granite slabs or brick piers. The chopping block is of stone. In this way the use of wood in housebuilding is reduced to a minimum. One two-story American frame house would supply enough wood for 200 Chinese houses.

The reason of this odd state of affairs lies first in the prevalence of fierce storms, especially typhoons, which would shatter a wooden edifice in a few minutes; and, secondly, in the devastating power of white ants and other insects. There is no remedy for these pests. When they get into a roof beam the beam must come down and a new one be used in its place, otherwise the roof may come down any moment and crush the entire household.

In shipbuilding the Chinese prefer their own woods and their own system to ours. Of a hundred foreign ships, condemned and sold in this district, only one was ever utilized by the natives for maritime purposes.

There may be a good field in this district for tea wood; that is, the thin sawn boards with which they make tea boxes. At least 1,000,000 boxes are made here every year. They are made by hand and marketed in shooks like shingles. A modification of the shingle machine would turn these out at a much lower cost and produce a far better article. If the woods would serve the purpose, I doubt not but that the California redwood and the Oregon pine might be worked up into tea wood and form a profitable commodity. If freights and insurance added to prime cost destroyed the apparent profit, there might still be a chance here for the ingenious shingle machines of the Pacific coast.

WILLIAM E. S. FALES,
Vice-Consul in charge.

AMOY, April 12, 1894.

CANTON.

Nearly all of the timber used in buildings is brought from Borneo, and is a heavy, hard wood, something like teak; it is sawed here as required. From the adjoining province of Kuang Si, some soft wood is brought for fuel, and some for beams, door and window casings, boxes, etc. There are no trade statistics available as to the quantity imported. Little or no American lumber reaches this market. The destructive action of white ants upon all kinds of wood, and especially upon soft wood, is awful, and is a serious feature in buildings.

CHARLES SEYMOUR,

Consul.

CANTON, *March 12, 1894.*

HONGKONG.

NATIVE WOODS.

There are no trees indigenous to the island of Hongkong.

Its present well-wooded condition is due entirely to artificial afforestation.

KINDS OF LUMBER USED.

China fir, for flooring, door and window frames, rafters, and scaffolding. There are forty-eight varieties of hard wood imported from the Philippine Islands, viz: Acle, agajac, amogins, antipolo, annbing, apition, aranga, baucal, bauaba, bausalagque, bauoyo, baticulin, batitinan, betis, calamansaseay, calimbajim, columpit, camagon, culasi, cedar, dalinoe, daugay, dingees, doliton, dongon, guijo, ipit, labuan, lanete, macasin, manguchapuy, malarujat, malasaguin, malatapay, molave, narra, pæna, palomaria, palma brava, palo maria de playa, taughili, tindalo, tindu-pantay, tucan-calo, tuog, supa, uban, yacal.

Of these Aranga, Molave, and Yacal are the only varieties in constant demand for house, ship, and wharf building purposes.

Molave is especially adapted for rudders, stem and stern posts, and piles, being practically weatherproof and not attacked by worms.

Aranga and Yacal are chiefly used for flooring, planking of wharves, and the outside planking of ships.

From Borneo are obtained Yacal, Kruen, and Serayat.

Kruen is largely used for the sheathing and casing of electric wires in houses.

Serayat is consumed in large quantities by the manufacturer of so-called "camphor-wood trunks." The grain resembles closely that of the genuine camphor wood, and when the Serayat has been steeped

in a solution of camphor, dried, and polished, only an expert can distinguish between the genuine and the counterfeit. Teak, China fir, and the genuine camphor wood are imported from the interior of China. A small quantity of Oregon pine is brought from the United States. This is at present used only for repairing ships and replacing masts and spars. The quantity is comparatively small, the bulk of it being brought by one vessel, a bark of about 800 tons, which makes one voyage a year.

DUTY AND PRICES.

Hongkong being a "free port," there are no import duties and no custom-house; hence it is absolutely impossible to obtain any statistics of the amount of lumber imported from other countries.

Oregon pine sells for about \$30 per 1,000 feet. The various hard woods bring from 60 cents to \$1.25 a cubic foot, according to quality.

CLIMATE.

We have practically only two seasons in the year, the dry and the rainy. The first lasts usually from September or October to February, inclusive, the second during the rest of the year. The heaviest rainfall is usually in June, when the heat is oppressive. After the 1st of July the humidity of the atmosphere greatly diminishes, and although the temperature during July and August averages 80° to 81° F. (the maximum for last year being 93.9°), the heat is by no means unbearable for persons properly clothed.

During July, August, and September Hongkong is subject to frequent circular storms or typhoons, which usually arise in the Philippines and travel northward up the Formosa Channel and the east coast of China, occasionally proving very destructive to life and property, particularly if they bend to the westward and go inland.

From October to January is usually the pleasantest part of the year, closely resembling the New England autumn or Indian summer. The lowest temperature recorded in 1892 was 44.2° F.

Although the city is built on a rocky hillside, malaria is very prevalent; but this is chiefly attributable to the entire absence (until recently) of drainage. Under the present enlightened régime there is no doubt that Hongkong should become, like Singapore, a recognized sanitarium for those debilitated by malaria or bowel diseases.

W. E. HUNT,
Consul.

HONGKONG, *February 22, 1894.*

TIENTSIN.

NATIVE WOODS.

There is really very little timber grown in the vicinity of Tientsin, or in the Provinces of Chihli, Shantung or Shansi. A considerable amount of elm, however, used here by the natives, for small repairs to houses, junks, etc., comes from the country in the neighborhood of Peking.

So far as I can discover there are no uncommon varieties of wood in the large section of China north of the Yellow River or Hwang-ho.

For centuries there has been no recorded policy in China for the protection of forests. The result is that the country is almost barren of timber, few trees escaping the woodman's axe sufficiently long to reach maturity.

Sometime ago the viceroy of the Province of Chihli, Li Hung Chang, who resides at Tientsin, realizing the situation, which was forced upon his notice by undertakings under his control requiring large and heavy timber, offered a bonus to encourage villagers in the cultivation of trees, but the few attempts that were made proved futile.

China is, therefore, wholly dependent upon other countries for lumber required in enterprises of any magnitude—a fact worthy of attention.

KINDS OF LUMBER USED.

For wharves, jetties, and many works on the Imperial Railway of Northern China, requiring lumber of considerable length and thickness, Oregon pine has scarcely a competitor. Its only rival is the cheaper and commoner pine from Korea, used where medium sized timber is needed. In railway construction in Northern China, to the discussion of which I shall devote a special paragraph, Oregon pine is used for all temporary bridge structures, for roofing, and for building freight cars. Teak is the wood employed at present in constructing passenger cars. Two cargoes of Oregon lumber, by sailing vessels, were bought by the Imperial Chinese Railway Company last year, and I am informed that another cargo is soon to arrive.

About eleven years ago Oregon pine was for the first time imported direct from Victoria, British Columbia, and from Port Townsend, but previous to that time a considerable supply of this wood reached Tientsin, via Shanghai and Hongkong. Even now it is so imported at intervals.

So far, then, as soft wood is concerned, we may safely assume that Oregon pine is safe from rivalry.

There is a large market here for hard wood, which market is untouched except from Vladivostock, Russia; Sandakan, Borneo;

Laquimanoc, Philippine Islands. The hard wood from Russia is generally small, ranging in size from 12 by 12 up to 16 by 16 inches by 25 to 30 feet in length, and is known as hakmatak. But this hard wood is not a dangerous competitor to the hard woods from Borneo and the Philippine Islands, the Russian Government frequently refusing to allow it to be exported, as it is in demand for the Siberian Railway.

Of Borneo woods the best is billian, and for strength and durability this wood can scarcely be surpassed. It bears exposure well, and seems almost indestructible. When newly cut, billian resembles oak, but with age and exposure it becomes as black as ebony. Samples of this wood have been shown me weighing 70 pounds per cubic foot. Other Borneo woods imported are russock, kapore, and serayah. The last-mentioned wood has a strong resemblance to soft mahogany, and is used for all purposes for which pine is suitable, and for furniture. Although serayah is soft, and therefore easily worked, it is very strong, tough, and heavy, weighing, on an average, 43 pounds per cubic foot. Borneo woods average in size 12 by 12 to 14 by 14 inches by 30 feet in length. If the question of expense is laid aside, one can with difficulty obtain Borneo woods 20 by 20 inches and 30 feet in length.

I am satisfied that, taking everything into consideration, the hard woods preferred in northern China come from the Philippine Islands. Of these, it has been estimated there are 30 varieties that have been brought from time to time to Tientsin. The best-known Philippine wood is the teak-like molave, which is grown from 11 to 22 feet in length and 12 to 24 inches square. Special lengths of this wood from 30 to 35 feet can be obtained to a limited extent at considerable extra cost. Molave is an excellent wood for resisting the action of the climate, which at times is very dry and at others very wet. It is also especially valuable for work on the surface or underground, as it is impervious to the action of the lime with which the soil around Tientsin is impregnated. This wood, as well as another variety known as bausalaque, is in general use for all purposes where an extra strong and durable wood is required.

The Chinese use a considerable quantity of hard wood yearly for general purposes and for repairing temples around Peking and in building and maintaining in order the imperial mausoleums. Work on the temples and tombs requires, not infrequently, wood 20 to 30 inches square by 40 to 60 feet in length, and Tientsin merchants, whenever they are able to supply such wood free from knots, cracks, and other defects, religiously observe the privilege of naming their own price.

Large quantities of small, soft-wood planks are frequently imported from Japan. These planks are very cheap. A Japanese soft-wood plank measures approximately 7 feet in length by 12 to 14 inches in width by 1 inch in depth, and is sold for 12 to 13 tael cents, or, at present low exchange, 8½ to 9½ American cents.

IMPORTS OF LUMBER.

Hard wood.—It is extremely difficult to locate the exact source of all the hard wood that comes to Tientsin, but it may be assumed that it is mainly shipped from Borneo, the Philippine Islands, and Russia. I have not discovered that hard wood comes from other quarters than those mentioned, although occasional shipments of Borneo woods come from Singapore.

Soft wood.—The following table of the imports of wood for 1889, 1890, 1891, 1892, and 1893, made up from the imperial maritime customs returns, gives but an imperfect idea of the sources and quantities of soft wood imported. A considerable portion of soft wood is transshipped at Chinese ports, before reaching Tientsin. This is a source of annoyance to the customs officials, who can not avoid making mistakes in separating the importation of native from foreign woods. A strenuous effort is made to do so as is shown by the divisions in the table. It is regrettable that this table does not convey a fair idea of the trade, as the customs do not take cognizance of timber imported for Government undertakings, of which the principal is the railway supplies, for such enterprises are passed duty free. Shipments from the United States destined for Tientsin could be more accurately ascertained at the ports of loading. Soft-wood logs come from Korea as mentioned above and a great number of soft-wood planks come from Japan.

In 1893 the railway imported from Japan 44,991 sleepers or ties. C. W. Kinder, esq., engineer in chief of the railway company, informed me that Japan sends most of the sleepers, quotations from the United States and Canada being too high, owing to the freight.

I am also well informed that a great number of the soft-wood planks returned as coming from Chinese ports are in reality sent from Japan and transshipped at Shanghai.

Table of imports.

Description.	1889.	1890.	1891.	1892.	1893.
Hardwood beams:					
From foreign countries.....pieces..	5, 912				137
From Hongkong and Chinese ports.....do....	579	2, 447	1, 565	539	18
Hardwood logs:					
From Hongkong and Chinese ports.....do....				*33, 795	150
Hardwood planks:					
From Hongkong and Chinese ports.....do....	1, 086	102			
Native wood from Chinese ports.....do....	9, 364	225	1, 096	1, 121	
Softwood planks:					
From foreign countries.....square feet..	537, 506	397, 104	478, 982	336, 061	235, 768
From Hongkong and Chinese ports.....do....	1, 601, 504	1, 035, 918	1, 412, 363	802, 291	1, 629, 181
Native wood from Chinese ports.....do....	553, 313	557, 530	626, 455	354, 019	
Soft-wood beams and logs:					
From foreign countries.....pieces..	1, 607	923			2, 850
From Hongkong and Chinese ports.....do....			22, 939		
Native wood from Chinese ports.....do....				4, 846	

* Cubic feet.

DUTY.

The duty on importations of wood, except those destined for Government enterprises, which are duty free, is 5 per cent ad valorem. This is not, however, the only charge that a cargo of lumber has to bear. The bar at the mouth of the river Peiho, which vessels drawing more than 11½ to 12 feet can not get over, necessitates lighterage. Lighterage charges are heavy, being 2.75 taels *(\$2.10) per 1,000 superficial feet, from outside the bar, and 1.75 taels (\$1.34) per 1,000 superficial feet from inside the bar to the foreign settlement at Tientsin.

Tientsin is situated 27 miles in a straight line from the mouth of the Peiho River, where there is a small settlement called Taku. The Peiho is a narrow, shallow, muddy river, and the distance from Tientsin to its mouth, by its meandering course, is about 50 miles. Tientsin is closed to navigation during the months of December, January, and February on account of the ice, which blocks the entrance to the Peiho during these months.

PRICES.

If entire cargoes are taken, the prices are naturally cheaper than those given below, which are current for lumber now on hand. It should also be borne in mind that, owing to the recent heavy drop in exchange, shipments made now can not compete by at least 30 per with the stock on hand. Oregon pine 10 by 10 to 20 by 20 inches by 30 to 50 feet can be obtained for 37.50 to 38 taels (\$28.69 to \$29; tongued and grooved Oregon pine planking is now quoted at 31 taels (\$23.72) per 1,000 superficial feet. Vladivostock hardwood is quoted at 23 cents per cubic foot; Borneo hard wood, 65 cents per cubic foot; Philippine hardwood, 84 cents per cubic foot; Koean soft wood, 15.3 cents per cubic foot; Japanese planks, 9 to 10 cents each. Borneo and Philippine hard wood, in sizes over 12 inches square, bring more according to size than the prices above given.

CLIMATE.

Tientsin has a cold, dry winter, the thermometer falling frequently to zero. The summers are extremely hot, with frequent intervals of heavy rains, accompanied by great humidity, and the thermometer has been known to register in the shade as high as 110° F. The spring and autumn months are agreeable in temperature, the transition from winter to summer and *vice versa* being gradual. The climate is considered a fairly healthful one.

SHIPPING AND EXCHANGE FACILITIES.

As a means of developing the lumber trade of the United States with this section of China, attention should be given to what might be called "useful tonnage."

*Haikwan (customs) taels = 76.5 cents—U. S. Treasury valuation on April 1, 1894.

Sailers that draw about twelve feet when the deck load is taken off, and that can carry as many logs as possible, without a heavy proportion of "broken cargo," or planks and laths (which latter always sell badly and reduce the profits on the venture), and that are about 400 tons measurement, are considered by experienced Tientsin merchants to be handiest and best. A vessel of the above description with a 6-foot deck load should bring 450,000 superficial feet to the bar, and 300,000 up to Tientsin itself, the vessel being lightened of 150,000 feet to enable it to get over the bar.

There are no difficulties in the way of financing shipments, as the prominent banks of China are represented at this port.

The following foreign houses interested in American trade are established here: Carlowitz & Co., Collins & Co., Cordes & Co., William Forbes & Co., Hatch & Co., Jardine, Matheson & Co., Mackenzie & Co., E. Meyer & Co., Philippot & Co., and Wilson & Co. The firm most extensively interested in lumber here is William Forbes & Co.

GENERAL BUILDING.

Railway construction.—During the last year rails were laid to Shan Hai Kwan, a distance of 180 miles from Tientsin, by way of Taku. Shan Hai Kwan is on the Gulf of Pechihli at the eastern terminus of the Great Wall, and the road is apt to stop here for the present as funds are in great demand at Peking for the festivities soon to occur, on the occasion of the Empress Dowager's sixtieth birthday. The first 80 odd miles of this road to Shan Hai Kwan are under the control of the China Railway Company and lead up to the Kaiping coal mines. These mines are the chief reason for this road, from the mines to Taku. The remaining 100 or less miles belong to what is known as the Imperial China Railway, of which Li Hung Chang is the director-general.

It is intended in time to push the Imperial Railway beyond the Great Wall in a northerly direction through Manchuria to Moukden and Kirin, in the neighborhood of the Russian frontier, a distance of about 450 miles from Shan Hai Kwan. This contemplated extension will require many temporary wooden bridges.

It is the imperial policy to replace all temporary bridges and works by steel structures and solid masonry.

The progress of railway extension in this consular district will be noted from time to time in my general reports to the Department. As the only railway in this vast Empire, its development will undoubtedly be carefully watched by those interested in railroad construction.

The Kaiping coal mines above mentioned are the only considerable mines in China worked by foreign methods and machinery.

SHERIDAN P. READ,

Consul,

TIENTSIN, *February 27, 1894.*

JAPAN.

NAGASAKI.

NATIVE WOODS.

Kiyaki, the hardest wood of Japan, resembling oak in fiber and capable of high polish, is used chiefly for fine work and for frames of ships. It is becoming very scarce, the price within the past few years having doubled. Hinoki, the finest kind of pine, is used in better class house building, furniture, for lacquerware, and for building Shinto temples. Sugi, fine cedar, principally used in house and shipbuilding. Aka matsu and kuro matsu, ordinary pines, decay rapidly under exposure to the atmosphere; used in common work. Kashi no ki, a species of oak, very scarce and small; used only for finest work. Kuso no ki, camphor wood; used for frames of ships, boxes, etc. Taki (bamboo), exists in considerable quantities, and, as elsewhere, is considered the most useful of woods.

KINDS USED, AND IMPORTS.

The wood most commonly used is pine.

The annual imports of lumber are about as follows: From Oregon, \$30,000; from Philadelphia, \$49.50; from India (teak), \$86,686; from China, \$10,000; total, \$126,735.50.

DUTIES AND PRICES.

The duty on imported lumber is 5 per cent ad valorem.

The prices are as follows:

Kinds.		Prices.	
		Sen.	Yen.
Sugi.....	per kata..	30 to	1.00
Hinoki.....	.....do.....	50	2.50
Kashi no ki.....	.....do.....	60	1.00
Kiyaki.....	.....do.....	1.00	2.50
Akawku.....	.....do.....	50	1.20
Kuramaeku.....	.....do.....	50	1.20
Kuso no ki*	.....do.....		
Taki (bamboo):			
Long.....	.....each.....		40
Small.....	.....per bundle.....		12
Do.....	.....each.....		1½

The kata=14 feet long and 5 inches wide and thick; the yen=33½ cents American; 100 sen=1 yen.

* Used only for the extraction of its oil. None in the market.

CLIMATE.

At Nagasaki the thermometer ranges from 30° to 98° F., showing marked differences from places in the same latitude in the United

States. The climate nearly resembles that of Charleston, S. C. Continuous hot weather begins about June and lasts until the middle of September.

GENERAL BUILDING.

With the exception of native junks, the only shipbuilding in this district, to any extent, is done by the Mitsu Bishi Company. There is a line of railroad running from Moji to Kumamoto, a distance of about 120 miles. There has been but little increase in railway mileage for the last six years.

The Mitsu Bishi Company, who have their engine and shipbuilding works at Akenoura, opposite Nagasaki, are the largest and, I believe, the only importers of Oregon lumber, as yet, in this district. They import quantities to the value of about 30,000 yen yearly, in lengths of 30 to 49 feet by about 3 to 6 inches; this is specially prepared and ordered six months in advance. The price for Oregon pine would be about \$39, gold, per 1,000 superficial feet in Oregon; delivered here, about \$50, gold.

The Mitsu Bishi Company have built during the past year 3 steamers, registered tonnage, 500 each, with triple expansion engines; speed, 10 to 11 knots; 1 vessel of 1,500 tonnage, triple expansion, 11 knots; and one of 2,000 tons, triple expansion, 11 knots. All of these are of the highest class, registered at Lloyd's 100 A1.

EXTENSION OF LUMBER TRADE.

Large quantities of lumber have been exported to China from Kiu-shiu, but the amount is steadily decreasing. As far as the Island of Kiushiu is concerned, the rapid destruction of the native forests is rendering wood more and more scarce, with a corresponding steady advance in price from year to year; it is therefore only a question of time when lumber, especially seasoned pine from the Northern Pacific coast, will find a large and growing market in Southern Japan.

W. H. ABERCROMBE,
Consul.

NAGASAKI, *February 5, 1894.*

OSAKA AND HIOGO.

NATIVE WOODS.

The principal native woods in this consular district are pine, cypress, beech, chestnut, oak, and the fir, of which there are many varieties. In the production of lumber and timber for building, these woods supply almost the entire needs of the country.

There is one variety of the cypress family (the hinoki) which is

especially valuable and highly prized. The wood of the hinoki is generally very white, sometimes slightly pink, very fine grained, tough, with little resin, and free from knots. The tree is found chiefly on the mountain sides, and flourishes in a soil composed of granite or volcanic rock. It has long been regarded as sacred, and is planted in many places along the roadside, and forms beautiful avenues leading to temples. The trunks are straight, having a circumference of from 12 to 13 feet and a height of from 100 to 120 feet. The wood is used in the construction of temples, for the ornamental decoration of the most expensive houses, and is preferred for lacquer ware.

There is another wood called kiaki, which by some is said to belong to the family of the beech, by others to that of the oak, but the grain is not so fine as that of the beech and the specific gravity is less than that of the oak. The tree resembles the beech in the color of its bark and general appearance, and resembles the oak in the grain of the wood. The kiaki is regarded as furnishing the best building timber in Japan, but, being expensive, is used mostly for joiner work.

There are three varieties of the fir, which furnish the usual building wood for houses, the sugi, momi, and matsu; the latter, being the strongest, is also used in bridge building. Extensive forests of these woods are cultivated by private individuals, and as the trees grow rapidly, the wood is much cheaper and more abundant.

It is estimated in official reports that of the entire acreage of Japan 23 per cent is covered by mountain forests, owned entirely by the Government, and 18 per cent by cultivated forests, the property of private owners.

PRICES AND IMPORTS.

The price of the above-named lumber is as follows per square foot: Kiaki, 54 sen; hinoki, 54; momi, 20; matsu, 25; and sugi, 21.

At the present rate of exchange 100 sen (one yen) equal 53½ cents United States gold.

Imports of lumber in 1893.

Imported from—	Yen.
Great Britain	481.46
United States	2,071.26
Canada	5,186.84
Germany	351.40
India	482.54
China	420.14
Total	8,993.64

The imports of foreign lumber at Osaka amounted to a little less for the same period. Foreign lumber is used at both ports in relaying the decks of foreign constructed vessels and in refurnishing their masts and spars. A small amount of Indian teak and other high-priced woods are imported for the manufacture of furniture.

CLIMATE.

The highest maximum of temperature at Hiogo for the past seventeen years was 96° F., but that was exceptional, as the mercury seldom reaches 94°. The lowest maximum temperature during the same period was 23°; this was also exceptional, as the mercury seldom falls below 26°. The average yearly rainfall is 47.41 inches.

E. J. SMITHERS,

Consul.

HIOGO, *February 1, 1894.*

NETHERLANDS—INDIA.

JAVA.

NATIVE WOODS.

The principal woods of Java are teak, iron wood, red wood, *rasa-mala*, and *cocoa*.

Teak wood is of the same species as that of India, is of a dark yellowish color, with fine grain, and is the common wood used for all kind of buildings.

Iron wood is very much the same as ebony; hard as iron, from which it takes its name, and very heavy, sinking in water. It is proof against all insects.

Red wood is red in color, and also very hard, with fine grain. It is not used much in Java for building purposes, as it is not a durable wood.

Rasa-mala is very much like red wood in color, but much more valuable, and is used for pilings for buildings where a solid foundation is required, as it is proof against all insects, such as white ants, etc., which destroy most woods.

Cocoa wood is almost black, with yellow stripes. When old it is used by the natives, but is of little value for building, as it soon decays when exposed or when in the ground.

There are many other kinds of woods, but little is known about them, as they are not used.

KINDS OF LUMBER USED.

There are two kinds of lumber used, teak and Singapore planks, the former being preferred for its durability; the latter are used by the Chinese for building, but they soon decay and are also destroyed by the white ants.

IMPORTS OF LUMBER.

About 20,000 feet of Singapore lumber are imported monthly into this district from the Straits Settlement and from Siam.

DUTY AND PRICES.

There is no duty on lumber. There are no regular price lists issued. Teak is generally bought by the log and Singapore wood by the 100 planks. A teak log 9 feet by 15 inches sells usually for \$3, and Singapore planks for \$25 per 100, the plank being 15 feet long, 1 foot wide, and 1 inch thick.

CLIMATE.

The climate of Java may be divided into the following seasons: The East monsoon, or dry season, from April to October, is dry and hot during the day, with a temperature of nearly 90°, and damp and chilly at night, when the temperature is about 80°; the West monsoon, or wet season, prevails from October to April, when the temperature ranges from 80° to 85° during the day and night, with a very damp and close atmosphere and almost continuous rain. This season is generally much healthier than the dry season. During this rainy season epidemics are unknown.

GENERAL BUILDING

With the exception of the Javanese houses in the country, which are constructed of bambop, nearly all the buildings in Java are of brick and lime, the doors and windows being generally of teak.

Where buildings are constructed on pilings, the native woods, such as *rasa mala*, or ironwood, are always used.

Vessels exceeding 100 tons register are seldom built of wood in Java, but such vessels as are built of wood are always built of teak.

Where wooden railway sheds are erected they are generally of teak; a few have frame of teak and Singapore wood for planking.

In former years cargoes of pitch-pine timber and spruce spars were imported from the United States, but for a number of years such importations have ceased, there being no demand for these woods.

Government warehouses built within the last few years are of iron, or iron frames and roofing, and brick walls. Private warehouses are built of brick, with tile or iron roofing.

All petroleum warehouses must be built of brick, and not less than 100 meters from any other building.

B. S. RAIRDEN,
Consul.

BATAVIA, *March 22, 1894.*

SIAM.

NATIVE WOODS.

The principal woods found in Siam are teak, rosewood, ebony, taback, and bamboo.

Teak is too well known to require a description. It is used extensively in Asia and Europe in shipbuilding, and considerable has been shipped from this port to San Francisco in 1893.

The rosewood and ebony are about like woods of this character found in other parts of the world. The former is of the finest variety, however, while the latter is somewhat inferior in color and size to a first-class grade of this wood.

Taback, in grain and color, is somewhat like the maple found in the United States. It is, however, brittle and soft and is not considered durable. There are other woods, but of minor importance.

KINDS OF LUMBER USED.

Teak and a common variety of lumber, imported from Singapore, somewhat like pine, but very much inferior, are about the only varieties of lumber used in Siam.

IMPORTS OF LUMBER.

It is impossible to give figures in answer to this question since the customs returns do not show it. Lumber is received under the head of miscellaneous goods and therefore may be classed along with anything and everything. The quantity is not large however, probably less than \$15,000 worth annually.

DUTY AND PRICES.

The import duty laid upon foreign lumber is 3 per cent ad valorem.

The prices of lumber are as follows: Square teak logs and planks range from 80 to 90 cents per cubic foot, according to dimensions; and unhewn or rough logs range in price from \$8 to \$16 per log.

"Singapore planks or lumber" (so called, as it is imported from that place, to which it is brought from the Malay Peninsula) is used here in building sheds and cheap shanties; the principal dimensions are 10 by 6 by $\frac{1}{2}$. It is sold by the 100 planks, or pieces, at from \$4 to \$5.

Rosewood is sold by weight, at from \$1 to \$2 per picul (133 pounds).

"Ebony," small sized logs—not pure black—is exported to China only, where it is used for making chopsticks. It ranges from 50 cents to \$1 per 133 pounds.

All the above prices, which are wholesale, fluctuate from 30 to 40 per cent, according to supply and demand.

CLIMATE.

The climate of Siam, while tropical, varies, for its territory extends from about 2° to 19° latitude north. The temperature in any part, however, rarely gets below 60° F., and generally averages between 90° and 100° F.

GENERAL BUILDING.

The building in Siam is limited, and is generally confined to this city. The upper classes among the natives build upon European plans, while the lower classes live in small bungalows, built of bamboo.

Shipbuilding is not carried on to any extent. The largest ships constructed are lighters of probably 100 tons displacement. The most of this kind of work is limited to building steam launches and rowboats.

EXTENSION OF THE LUMBER TRADE.

I believe it hardly possible to open up a market for American lumber in Siam, except, possibly, in some of the cheap varieties, which would necessarily have to be brought here at a low rate of freight, and it should be impervious to white ants, which are very destructive in this country.

Railroad building I have mentioned in a separate paper herewith inclosed.*

ROBERT M. BOYD,
Vice-Consul-General.

BANGKOK, *February* 21, 1894.

TURKEY IN ASIA.

PALESTINE.

NATIVE WOODS.

Palestine, within historic times, has never been a wooded country. At present there are practically no native woods suitable for building purposes. The celebrated oak and terebinth, which once covered the highlands with considerable forests, are now represented by a few dwarfed specimens of their kind. The olive still lines the hillsides and valleys, but does not furnish any building material, being used solely in the manufacture of olivewood ornaments and trinkets.

KINDS OF LUMBER USED.

There is very little wood used in the construction of buildings of any kind. Stone, which is so abundant, is used for every part of the struc-

* See Consular Report No. 165, p. 224.

ture. A very few of the modern buildings are having wooden floors and ceilings. For this purpose pine is generally used. There is no reason why native woods should not be grown to an extent to supply the local demands. The present administration cares nothing for tree culture or economy of forests. On this account, 99 per cent of all lumber used is imported from foreign countries or from other districts of Turkey.

The native woods are olive, oak, orange, and fir, which are used almost entirely for fuel.

Quite a box trade has grown up at Jaffa, boxes being necessary for the shipping of the oranges grown there. The kinds of lumber wanted for this, and also for the small demand for building purposes, are pine and fir.

IMPORTS OF LUMBER.

The value of the lumber annually imported at the port of Jaffa is from \$60,000 to \$100,000. This lumber comes from Austria, Sweden, and other parts of Turkey. Austria controls the great bulk of the import trade, sending to Jaffa nearly three-fourths of all the lumber entered there. From Jaffa it is distributed to such other places as desire it.

DUTIES AND PRICES.

The amount of duty upon imported lumber is 8 per cent ad valorem.

The price ranges from \$8 to \$10 per cubic meter. From 6,000 to 10,000 cubic meters are imported annually at Jaffa.

CLIMATE.

The climate of Palestine is generally warm. There is a wet and dry season. The wet season corresponds to the winter months in our Northern States. The summers are very dry and hot.

GENERAL BUILDING.

There is some activity in general building, but there is no ship or railroad building now going on in this district.

EXTENSION OF LUMBER TRADE.

No American wood has as yet found its way into Palestine. This is probably due to the long transportation necessary; but there seems to be no reason why, with direct communication between American ports and Jaffa, our dealers should not compete successfully with those of other countries, and acquire their share of the lumber trade of Palestine.

EDWIN S. WALLACE,
Consul.

JERUSALEM, *February 3, 1894.*

SYRIA.

SYRIAN-AMERICAN COMMERCIAL RELATIONS.

The general question of increasing the exports of American lumber is of great moment in the timber-growing States, but special attention should be challenged by a country as much in need of lumber as is Syria and this entire section of the Orient.

The distance is, of course, the principal if not the controlling reason why American enterprise has not been felt in the East; but the inexhaustible supply, together with the cheapness of American lumber, should recognize no barrier, and should create a demand and provide a means of supplying that demand in any direction and in all countries. No better time could be seized for this purpose than the present.

In the old days of sailing vessels there was considerable exchange of oriental stuffs for American lumber, which came direct from the United States and was highly valued here, but the modern facilities afforded by English steamships and the more convenient French and Austrian coasting vessels have absorbed nearly all commerce with Syria and have certainly cut off direct communication with the United States. Syrian merchants fear to open up business relations so far away from home, where they are not known and where they do not know the parties with whom they would be dealing; but it is entirely within the range of strict business expectations to foresee that the closer relations fostered by the recent World's Fair and also nurtured each year by the extending tide of tourist travel, will call for a full and friendly interchange of commercial commodities between the East and West, as represented by Syria and the United States.

There is wealth in abundance here among the well-to-do classes, as represented by the Sursock Freres and by Tueni & Sons, who are leading bankers, and by Moussa Freige, by Bustros & Son, and other large dealers in eastern securities and goods. The largest dealers in lumber in Syria are Joseph Khasho & Fils and B. Audi & Co., of Beirut. These men and their associates would readily take American products and materials if brought here direct; or they would soon fall in line and import for themselves if an experiment were successfully made and they could feel sure of mutually beneficial and reciprocal transactions. This class of merchants was not represented in Chicago, as they prefer European cities for business purposes, by reason of partial residence and years of custom; but those well informed and observant Syrians, of whom Khalil Sarkis, editor of the Beirut Public Opinion (*Lisan el Hal*) is a fair representative, and who spent many months in the United States in 1893, were so profoundly and enthusiastically impressed by the resources and modern improvements of the country, as well as with its immensity and general attractiveness, that they are and will continue

to be influential and hearty factors in promoting personal and commercial interchanges between Syria and the United States.

Syria presents no greater material need to-day than that which might be fully met by American forests, and if the dealers of such great pine-growing States as Michigan and Georgia would venture so far from their base of supplies they could open up a new and valuable market for their lumber, which can easily compete with eastern woods for ornamental purposes, and for cheapness and lasting service, such as flooring, ceilings, and general housebuilding, is unequaled. Northern and Southern States could all find a demand for their rich and abundant forest supplies in a land where lumber is scarce and where fine wood-work is appreciated as it is nowhere else.

THE NATIVE WOODS.

Syria is comparatively a poorly wooded country by reason of the continued use through centuries of the native lumber and the utter carelessness of most of the changing occupants of the land in replacing the forests as they were destroyed by time and the hand of man. The famous cedars of Lebanon, which were the chief glory of the mountains in the time of Solomon, have nearly all disappeared, and of the old-time forests naught now remains except a few groves which adorn the southern slopes and northern valleys of these historic mountains.

The special varieties of native woods known in this part of the Turkish Empire are the cedar, nut, oak, apricot, mulberry, willow, poplar, and pine.

The cedar is very rare and difficult to obtain on account of the prohibition placed a few years ago by the authorities on cutting or destroying any tree, shrub, or spray in the Lebanon cedar groves.

The nut wood, which is valuable on account of its rich luster and beautiful color, is used for making rare and fine household furniture and for general ornamental woodwork. It is well adapted for carving purposes, and is frequently set with mother-of-pearl and is also used for coating objects made of common woods.

The oak is usually devoted to the manufacture of agricultural implements. It is too rare in Syria for use in general house building, and does not compare with nut wood for ornamental purposes.

The apricot wood, which has a reddish shade, is of little use owing to its poor quality.

Willow and mulberry are, also, of inferior quality, but are used in towns for making objects of little value, while in the country they find frequent use as window shutters, blinds, and baskets.

Poplar and pine beams, owing to their exceptional length, are specially used as horizontal supports for roof coverings in Damascus and the mountain villages. Pine, oak, and wild cedar are also used in the construction of the small boats used on this coast for hauling, fishing, and pleasure craft. These woods make the native lumber, but other varieties are imported.

IMPORTS OF LUMBER.

The imported woods are fir, wild cedar, red pine, beech, mahogany, nut, and pelissander or ebony. The wild cedar and the fir are preferred over all other varieties for building purposes, while the nut, beech, mahogany, and pelissander are preferred for ornamental woodwork, furniture, etc.

Fir constitutes the largest amount of lumber imported into this country. It is imported from Austria. Special care is taken with this fine wood and with forests generally in Austria, and it is their boast, after observing the waste of wood and the wholesale destruction of forests in the United States, that Austrian forests will some day be supplying the United States with lumber.

The annual imports of each foreign variety are approximately estimated to be, on an average, as follows: Fir wood from Austria, 300 wagons or car loads; wild cedar from Caramania, 90,000 pieces; red pine from Caramania, 25,000 pieces; beech from Anatolia and the Black Sea, 10,000 pieces; mahogany, ebony or pelissander, and nut woods from different parts of Europe, 40 cases, containing each 500 sheets, leaves, or pieces.

IMPORT DUTIES.

The customs duty imposed on lumber imported from foreign countries into Syria is 8 per cent ad valorem. Lumber is also subjected to other local duties upon landing, viz, municipal duty, 2 paras (2 mills) per piece; and wharf duty, 4 paras (4 mills) per piece.

PRICES.

Fir boards or planks, which usually measure 4 meters (4.3745 yards) long by 25 centimeters (9.84 inches) wide, and 25 millimeters (0.984 inches) thick, are worth from 7½ to 11½ piasters (27 to 42 cents).

Wild cedar wood costs from 70 to 80 cents per piece. Red pine is worth from 53 to 67 cents per piece.

These two last varieties are imported in the shape of either rafters measuring 5.468 yards long by 6.299 to 7.086 inches wide and 3.149 to 3.54 inches thick, or laths measuring 3.231 yards long by 9.84 to 11.811 inches wide and 3.937 to 5.905 inches thick.

Beams of fir or red pine imported from Trieste and Caramania, measuring 6.56 to 8.74 yards long by 9.842 to 11.81 inches wide, cost from \$2.90 to \$3.86 each, while the beams having 9.84 to 10.936 yards in length and 13.78 to 15.748 inches in width, are worth \$9.65 to \$11.58 each.

Beech laths, measuring 4.374 yards long by 4.72 inches wide and 4.72 inches thick are worth from 96 cents to \$1.12 each.

The average price of a box of mahogany or nut wood containing each 500 sheets is about \$70, while the box of pelissander (ebony) is

worth about \$200. These sheets or leaves measure as a rule 2.187 yards long by 19.68 to 23.62 inches wide.

Other kinds of native wood can not be subjected to even an approximate value, having no definite measure and having endless shapes and forms.

CLIMATE.

The great extent of Syria furnishes a variety of temperatures even in the same season, but it may be said of the eastern coast of the Mediterranean that it can boast the most favored semitropical climate of the East, if not of the world. No frost ever comes to the coast, while the peaks of Lebanon, in full view, are crowned with snow all the year. It is possible therefore for residents to obtain any temperature they may desire. Tropical trees, fruits, and vegetables flourish in the balmy air and rich soil; and while seaside residents resort to the neighboring mountains in the hot and damp summer months for health and pleasure, it is safe to affirm that this climate is as equable and healthy as any similarly situated in the world. A perfectly pure and abundant water supply from the mountains is the best safeguard for Beirut against cholera or climatic ills, and this district is comparatively free from infectious and contagious Oriental diseases. The year is divided into the dry and rainy seasons; the heaviest rains falling in December, January, and February; the annual rainfall varying from 30 to 45 inches. The thermometer ranges from 85° to 35° F. on the coast and from 80° to 30° F. in the mountains. The Lebanon slopes are temperate and agreeable in climate all the year round.

GENERAL BUILDING.

The building up of Beirut, in the past two decades, from an old Oriental town into a great modern city should designate it as the miracle city of the Mediterranean. It may well claim a great future, for its widening streets and rising halls now mark the site of what must be one of the principal emporiums of the entire East, when its railroad system is completed to the fields of the Hauran and possibly to the Persian Gulf. Its people are alive to the situation, and general building and public improvements show the result of devotion and enterprise on the part of officials and residents. Nearly every house in the city and in this district is constructed of stone on account of the scarcity of wood, as already stated, and also because the immense mounds of sand here are as convenient for mortar as the quarried boulders of Lebanon are ready for reunion into solid and shapely structures.

Shipbuilding is not a large industry here, but small sailing and fishing boats are constructed in numbers for harbor and coastwise use. The harbor itself is being very greatly improved, so that ships can come into port and land their cargoes and passengers at any season—something that is not possible in every port of the Mediterranean.

This magnificent and extensive harbor work is being done by a wealthy French company, and the same company has the concessions for the Beirut, Damascus and Hauran Railway, a line which is now being rapidly pushed to completion and which will be in operation next year. This railroad, the first in Syria, will not only furnish an easy approach for tourists to Damascus, one of the oldest cities in the world, and give its famous bazaars an avenue to the world's commerce, but will also open up the Hauran, the richest and most inexhaustible grain country in the East. This system of internal improvements is under the personal management of Count Edmond de Perthuis and M. René Emond, who are backed by abundant capital from Paris.

This new railroad runs through the most picturesque scenes of the Lebanon Mountains and touches many of the thriving and beautiful villages which are the health and pleasure resorts of Beirut residents and even of people of wealth from Alexandria and Cairo.

EXTENSION OF LUMBER TRADE.

The wonderful growth of Beirut attracts many foreign importations. Syrians welcome any improvements and machinery from the United States.

If American capitalists would send a few ships direct to this port, even at the risk of small returns at first, a rich harvest would be reaped later on. Lumber, at lower prices than the Austrian imports, offers a readier return than any other American product, because this land is almost bare of forests; and direct shipments of the superior timber of the United States should easily compete with European lumber in spite of distance.

Syrian wools, silks, fruits, licorice, and the fine workmanship of Damascus could be taken back in return, and there is no reason why a direct line of merchant steamships to Syria would not pay Americans as well as Englishmen.

Acquaintance and confidence will stir the Syrian merchants to action, and if they are once started and are assured that their wools and the products of their silk looms will find a sure market they will be glad to cross the seas and exchange products with the United States. They are particularly anxious for lumber, cheap woods for flooring, ceilings, and general building purposes.

THOMAS R. GIBSON,
Consul.

BEIRUT, *February 15, 1894.*

AUSTRALASIA.

NEW ZEALAND.

NATIVE WOODS.

The principal woods are here mentioned in the order of their usefulness and value. It has been ascertained beyond question that certain native timbers possess greater durability when grown in particular situations than in others. For example, north of the Auckland isthmus a native tree, known as hinau, affords a small proportion of heartwood, and is therefore considered of little value; in the province of Wellington the proportion of heartwood in the same tree is large, and the timber is highly valued for its durability. The Northern rata (*Metrosideros robusta*), one of the most useful woods in New Zealand, when grown in moist places produces timber of an inferior quality to that grown in ordinary situations, being liable to dry rot; in fact, the fungus is often found on this timber, grown in moist places, before it is cut down. It is well known that kahikatea (white pine), grown in dry places, affords more durable timber than when grown in swamps; although, at the same time, inferior to much of the swamp timber for bearing transverse strains. This rule applies pretty generally to nearly all the native woods grown in swamp lands here.

In view of the importance of having in all cases suitable timber for public works, it is advisable that it should be cut down under the direction of some competent person, so that unsuitable timber, whether defective from having grown in situations not naturally adapted for the particular kind required, or from not having arrived at maturity, might be rejected at the outset, thereby insuring against poor material and guaranteeing the most satisfactory results.

The names of the different trees herewith, falling as far as the order could be maintained, are given as follows: English names first, native names second, and botanical names third. In most cases the English and native names are the same.

Kauri (Dammara Australis).—The kauri is certainly the finest tree in New Zealand, and produces by far the most valuable timber. It is, however, restricted to the northern part of the north island, and does not occur in any quantity south of latitude 38°, although solitary trees are met with a little further south. It attains a height of 120 to 160

feet and upwards. Clean symmetrical trunks may be seen from 50 to 80, or even 100 feet in length, varying from 5 to 12 feet and upwards in diameter.

The timber has acquired a reputation above all other New Zealand timber from its value for masts, spars, and other purposes of naval architecture, which, about the commencement of the present century, led to its being exported for use in the British dockyards.

In this colony, except for general building purposes, its use has been chiefly confined to the north island, where there is abundant evidence of its durability for more than forty years in some of the old mission buildings at the Bay of Islands, the weatherboarding of which to this day exhibits no signs of decay. Kauri has been employed, in conjunction with totara, for the upper timbers of the Auckland wharf, the largest work of its kind in the colony, and with most satisfactory results. Braces, stringers, and tie beams are in good condition after being eighteen years in use. Recently an old pier, built twenty-three years ago, was removed, and most of the timbers, afterwards employed in the construction of a railway in the vicinity of Auckland, were found to be perfectly sound; some, of course, were decayed.

It is used for ties in coal and gold mines, for tramways, telegraph poles, and curbing for sidewalks, with the most satisfactory results. An instance is given where it had been used for eighteen years for curbing in front of the Government House in Auckland, and when removed found to be perfectly sound. It is not so well adapted for piles for marine wharves or bridges or jetties, as it is attacked by the teredo as soon as the bark is decayed; and, although squared timber will resist the teredo for a longer period, it is found that kauri is inferior for such purposes to other New Zealand woods. A steady export of kauri is carried on chiefly with Tasmania, Australia, and Mauritius; it is, in fact, the only New Zealand timber exported to any considerable extent. Kauri resembles the California redwood in nearly every particular, except that kauri is, perhaps, finer and closer grained.

Totara (podocarpus totara).—The totara is found throughout the colony, usually attaining its greatest dimensions on rich alluvial lands or on dry hillsides of low elevation.

Large specimens are found north of Auckland, but it does not occur in abundance until after passing the southern limit of the kauri, viz, 38°. Although not equal in size to the largest specimens of the kauri, trees are occasionally found from 8 to 10 feet in diameter, 4 to 6 feet being about the average size; height, 40 to 70 feet. From the extensive area which it occupies, it has been more generally used than the kauri, and is the chief timber employed for building purposes in the province of Wellington, where it occupies a similar position to that held by the kauri in the Auckland province.

According to experiments made by competent engineers it has been demonstrated that totara ranks below kauri in point of strength, at

the same time it is scarcely, if at all, inferior to it in durability. The general unanimity of opinion in its favor is remarkable, some considering it superior to kauri for general purposes, but this opinion is only found where totara is cheaper and more plentiful than kauri.

For piles for marine wharves and bridges, etc., it is regarded by those who have used it as one of the most valuable timbers known. In addition to its great durability, it has the power of resisting the attacks of teredo for a considerable period, especially if driven with the bark intact. It is said, and I believe truly, that trees felled during the growing season will resist the attacks of teredo for a longer period than those felled during the winter months. In some quarters this advantage is questioned, though it is positively stated by many who have had long experience in this respect that totaro piles driven with the bark on are absolutely free from perforation by teredines while the bark remains intact. The heart of totara will resist the teredo still longer. It frequently happens that when totara piles are driven the sap-wood is attacked and thoroughly perforated, after which the teredo dies, being unable to make any impression on the heartwood until it has been subjected for a longer period to the action of the sea water, when the mollusk resumes possession, and the destruction of that portion of the wood exposed to its ravages is a mere matter of time.

It may be fairly estimated that kauri and totara afford more than two-thirds of the indigenous timber employed for buildings and constructive works in the colony. Both are extensively used for general building purposes and exhibit practically the same amount of durability; kauri, however, is more easily worked and takes a higher finish.

Rimu (red pine).—A tree from 40 to 80 feet high; trunk, 3 to 5 feet in diameter. It is found throughout the colony, but in greater abundance in the Middle Island and in the southern part of the North Island. It is better adapted for housebuilding purposes than for constructive works. Whenever it has been exposed to the action of the weather, except in housebuilding, it has given no satisfaction. Although it can not be considered a suitable timber for outside work, its great strength and the facility with which straight logs of large dimensions can be obtained, enable it to be used with advantage for heavy beams, girders, etc., under cover.

Kahikatea (white pine).—This tree grows from 50 to 100 feet high and upwards, with trunk 2 to 4 or even 5 feet in diameter. It is found in nearly all the forests of the colony, but in greater abundance in swampy districts. It is not regarded as being of any great value, especially for outdoor work, but when used inside, if kept free from contact with the earth and in a perfectly dry situation, it lasts fairly well.

Matai (black pine).—Found throughout the colony, but not in any considerable quantities in some portions of the North Island. It usually attains a height of from 50 to 70 feet, with the trunk from 2 to

4 feet in diameter, and affords a timber of great durability, which is used for a variety of purposes, such as piles for bridges, wharves, and jetties; bedplates for machinery, millwrights' work, house blocks, railway ties, etc.

Miro (also called *black pine*).—Of similar distribution to the last, which it closely resembles. It is easily distinguished when in fruit, as the fruit is solitary instead of spicate. The cross section of the timber shows the heartwood star-shaped and irregular. It appears, however, to be specially adapted for use in positions where it is partially exposed to the influence of sea-water, and under these circumstances exhibits great durability. As a rule it is not esteemed a durable wood, except under the above conditions.

Tanekaha (*Phyllocladus trichomanoides*).—A straight, handsome tree 50 to 60 feet high, trunk rarely exceeding 3 feet in diameter; common in hilly districts in the North Island, and quite abundant in the province of Auckland. The timber is white, dense, and heavy, closely resembling in everything but size, it is said, the best crown memel of Europe. No particular tests have been applied up to the present to ascertain its strength and elasticity, but it is believed to be one of the strongest and most durable timbers in the colony. The wood appears to be specially adapted for railway ties and highway bridges, etc. An instance of its durability is given by a civil engineer, who says he has seen tanekaha used in water-tanks at the Bay of Islands after being eighteen years in use.

Cedar; Pahautea (*Libocedrus bidwillii*).—A handsome conical tree 60 to 80 feet high, 2 to 3 feet in diameter, producing a dark red close-grained timber of great durability, but inclined to be rather brittle. Found on the central ranges of the North Island, and sparingly throughout the South Island, but never below 1,000 feet. This particular timber has been largely used in the construction of railways in the South Island, with satisfactory results. It has been known to last in good condition as piles in dikes and bridges and fencing posts for over twenty years. For fence posts it is preferred to totara, but this claim is evidently ill-founded. It is, also, largely used for the manufacture of furniture.

Teatree; Manuka (*Leptospermum oricoides*).—This tree attains a height of 40 to 50 feet, with trunk 15 to 30 feet in length and 1 to 2 feet in diameter; wood, hard and dense, much used for house blocks, fencing rails, and especially valued for small marine piles. This timber is largely used throughout the colony for piles in the construction of jetties, wharves, etc., where timber of larger dimensions is not required. It exhibits greater durability in marine structures than when driven for land or fresh-water bridges. When used for land piles it has been found to decay at the ground level in about six years. On the other hand, piles in marine works in Auckland and other parts of the colony have been found to be perfectly sound after being twenty years in use.

In one New Zealand district (Otaga) it is considered to resist the attacks of teredo better than any other wood. In this respect I may remark that experience has taught that the teredo is more active and consequently more destructive in some sections of the country than in others, so that the claim of superior resisting powers against the ravages of this insect may not be well-founded. It has, also, been ascertained that piles cut during the growing season resist the attacks of teredo much longer than those cut in the winter.

Puriri (Vitex littoralis).—This tree grows to a height of from 40 to 60 feet, with a trunk from 3 to 5 feet and upwards in diameter. It has been appropriately styled the New Zealand teak; it is, in fact, closely allied to the Asiatic teak, and affords a timber of great density and extreme durability, closely resembling lignum-vitæ in general appearance. In durability it probably excels all other New Zealand timbers. The growing tree is subject to the attacks of the larva of the puriri moth, which bores holes sometimes three-eighths of an inch in diameter, but the durability of the timber is not directly affected; it is never attacked when once worked up. It has been largely used in housebuilding. In some houses now considerably over thirty years old the wood is still in a perfectly sound condition. Posts of the heart-wood which have been in the ground for twenty years are still sound and good.

Black birch; Hutu-Tawhui (Fagus fusca).—The true black birch is a splendid tree. It ascends the mountains from the sea level to 3,000 feet. The tree is usually from 60 to 90 feet in height, with a trunk from 3 to 8 feet in diameter. In many districts it is abundant, and forms a large portion of the forest. Its use is pretty general in upper timbers for railway construction, bridges, jetties, mine timbers, etc., and has given uniform satisfaction. It has been used for piles in marine works, and it is said to be very durable, offering great resistance to teredo.

White birch (Fagus solandii).—This tree, as also the red birch (*Fagus menziessii*), has the same distribution over the colony as the black birch and practically the same general characteristics, so far as size, elasticity, durability, and general usefulness are concerned. These woods, black, white, and red birch, are so well known that a more extended notice of their relative worth as building materials, etc., would probably afford no information that would be considered valuable.

Pohutukawa (Metrosideros lucida).—This tree is almost peculiar to the province of Auckland, where it is abundant on rocky coasts, sometimes attaining a height of 70 feet or more, but with a comparatively short trunk, 2 to 4 feet in diameter, and numerous massive, tortuous arms. Its peculiar forms, combined with its great durability, renders it specially adapted for the purposes of the shipbuilder, and it has usually formed the framework of the numerous vessels built in the northern province. For this purpose it is much esteemed, and is considered superior to the northern rata (*Metrosideros lucida*), which in many

localities enters very largely into the shipbuilders' trade. Hitherto it has not been used much in constructive works, but its density and great durability must render it valuable for the framing of dock gates, sills, etc. It has never been known to be perforated by teredos, except in the most superficial manner. It has an exceedingly rich, deep-green foliage, and blossoms about Christmas every year. The flowers are a beautiful deep red, large and rose-shaped, and very numerous. It looks very fine when in full bloom. It is only found along the seacoast of the North Island.

Ironbark; rata (Metrosideros lucida).—This is usually found in hilly situations, but descends to the sea level in the extreme south. It is a handsome tree, 30 to 60 feet high; trunk usually from 2 to 5 feet in diameter; often very short. The timber resembles the preceding, but is less dense in texture and has the advantage of splitting freely. It has been used in shipbuilding in the South Island, and has lately been utilized in the building of railway freight cars, for which its great strength and durability render it well adapted.

Rata (Metrosideros robusta).—This tree is almost confined to the North Island. Height, 60 to 100 feet; diameter of trunk, 5 to 12 feet and upwards. The timber resembles the preceding in its appearance and is equally dense and durable, while it can be obtained of much larger dimensions, so that it affords greater facilities for the construction of railway cars, etc. It is used for shipbuilding, but for this purpose it is found to be inferior in durability to the pohutukawa, although it can be more easily procured in some situations. It will doubtless in time be more frequently substituted. One peculiarity of this tree is that it begins to grow at the base of another tree around which it entwines itself like a woodbine, which it very much resembles in general appearance. It continues to encircle the larger tree, embracing it so tightly that it ultimately kills it, after which the rata continues to grow, taking the place of the original by absorption—that is, it assumes control and becomes merged with the old tree, which has lost its identity.

Hinau (Elæocarpus dentatus).—Common throughout the country. Used largely for railway ties, mine timbers, fencing-posts and rails, and occasionally for bridges. One fault found with it is that it appears to split too freely for the latter purpose. The timber is of a light dull-brown color, very tough, strong, and durable.

Kowhai (Sophora tetraptera).—Found in all parts of the colony, varying in size from a small shrub to a tree 30 to 40 feet high, with a trunk 1 to 3 feet in diameter. It is alleged that the timber closely resembles the European laburnum, and is of great strength and durability; but the supply of large timber is limited, it being often no more than a bush. It is generally used for house blocks, railway ties, fencing-posts, rails, and piles. It has been found to be perfectly sound after being in use for more than twenty years.

Maire Tawhake (Eugenia Marie).—A small tree about 40 to 50 feet high, 1 to 2 feet in diameter. Common in swampy land in the North Island. Timber compact, heavy, and durable. Used for jettying, piles, fencing, railway ties, etc.

Tawhero (Weinmannia racemosa).—This is a small tree 30 to 40 feet high, 1 to 3 feet in diameter. It is often called black birch, and is even substituted for that timber, to which it is greatly inferior in strength and durability. Its bark is much used for tanning.

Rewa-Rewa (Knightia excelsa).—This is always considered a perishable timber. It is used principally as an ornamental wood by cabinetmakers, and inlayers, and workers in fancy and ornamental woodwork generally. It is a bright, yellowish wood, with large, soft grain, capable of high polish. Generally useless, except for ornamental purposes.

Tipau (Myrsine salicina).—This has been used only in places where good timber is scarce. It is not considered durable, although highly valued for inlaying, veneering, etc.

Taraire (Nesodaphne taraire).—This is a very handsome tree 40 to 50 feet high, trunk 1 to 2 feet in diameter. Timber compact and capable of taking a fine surface, but not durable when exposed. It is largely used for shingles and is much esteemed by cabinetmakers because of its softness, even grain, and high polish when worked.

Mungeao (Tetronthera calicaris).—A small tree, most plentiful north of the Auckland Isthmus. Height about 40 feet. Timber close grained and extremely tough. Utilized largely for the manufacture of ship's blocks, etc.

Black Maire (Olea cunninghamii) and Maire (Santalum cunninghamii).—These afford fine-grained timber of great density, and are extremely durable. All are commonly called "Maire," alike by settlers and natives. Black Maire usually attains the largest dimensions, and is sometimes found 40 feet high or more. *Santalum*, of this species, is the least of the group. All the different kinds are confined to the North Island, and are most plentiful in the province of Auckland. There are three different kinds of these trees, but two only are worthy of mention here.

Kohe Kohe (Dysoxylum spectabile).—This is a handsome tree, with the trunk 2 to 4 feet in diameter; heart wood reddish, tough, but not durable. The wood is occasionally used by the cabinetmaker, but is not as well known as it deserves to be.

Titoki (Alectryon excelsum).—This tree is generally distributed through the colony, except perhaps in the extreme south. It affords a tough close-grained wood, well adapted for the purposes of the machinist, but is not durable when exposed.

Kawaka (Libocearus doniana).—A splendid tree from 60 to 100 feet high, the trunk from 3 to 5 in diameter. Up to the present the timber has not, I believe, been generally used except for fencing, but

there is no doubt in the minds of those familiar with it that it will prove equally durable with its congener, *L. bidwillii*, already noticed.

Manoao (*Daerydium colensoi*).—This is a small tree 30 to 40 feet high found in various parts of the country, but has scarcely been used except locally for house building, although well known even to the natives as being one of the most durable timbers in the colony.

Pukatea (*Atherosperma novæ Zealandiæ*).—This is a striking tree, frequently found 150 feet high, with a trunk of from 3 to 6 feet and upwards in diameter. It is common in swampy places. Timber soft, but apparently durable in water. It has been used in Auckland for boat building, but is not greatly valued.

There are several other trees that might be mentioned, but so far they have not been found to be of any commercial value, therefore their inclusion in this report would not afford any useful information.

I am much indebted to a work published by Mr. Ashley Hunter, C. E., on the "durability of New Zealand timber." The work mentioned is very complete, giving as it does in detail the durability and strength of the different woods referred to. But the details are too minute and elaborate to be included in a general report of this kind. I send with this report 13 samples of the New Zealand timber which are most esteemed for their commercial value and usefulness. *

KINDS OF LUMBER USED.

Kaure timber largely enters into all kinds of construction work in the North Islands in preference to any other kind. It is admittedly superior for general purposes, and is used in all kinds of building and constructed works, from a window sash to the masts and spars of a vessel.

For boat building, Oregon pine and spruce are occasionally used for spars and skulls. For the latter purpose the best selected Oregon pine only is used, and costs laid down here, duty paid, about 10 cents per superficial foot.

Most of the American lumber used in this country is imported from Melbourne and Sydney; but Oregon pine imported from either of the above colonies costs, laid down here, about \$6.30 per 100 superficial feet.

American hickory and ash are largely used for coach building in this country, and give the greatest satisfaction. Hickory and ash are preferred to all other woods for coach and carriage building, and would be more generally used if less expensive. It has been found impossible to use the above-mentioned woods in the shipbuilding trade owing to the cost being excessive. Small quantities of hickory and ash were imported direct from New York last year, but just how much I have been unable to ascertain. There is an average of one sailing vessel a month leaving New York for New Zealand ports, in addition to

* Samples filed in the Department,

the mail steamers, which make four weekly trips between San Francisco, Honolulu, Samoa, Auckland, and Sydney. It is possible a general agency for American lumber might be profitably established in this colony, thereby avoiding the middleman's percentage in Sydney and Melbourne, which materially increases the cost to the consumer here, a result which naturally tends to discourage the use and importation of American timber.

IMPORTS AND DUTY.

There is very little lumber imported from abroad to this colony. Last year 45,540 superficial feet were imported from the United Kingdom, valued at \$1,710. The duty on lumber is 48 cents per 100 superficial feet.

PRICES.

The following price list which I obtained from the Kauri Timber Company, of Auckland, will show the prevailing prices here. This company owns the largest sawmill in the colony, and has practically a monopoly of kauri timber.

Retail prices current.

[Subject to alteration without notice at the company's yards, Auckland and Onehunga.]

Description.	Sizes sold by	Sizes when dressed.	Kauri timber, per 100 feet superficial.		
			First class.	Medium.	Second class.
Ordinary building timber, undressed, up to 24 feet long, 1 inch or more in thickness, and not exceeding 12 inches wide	<i>Inches.</i>	<i>Inches.</i>	<i>s. d.</i> 12 0	<i>s. d.</i> 9 0	<i>s. d.</i> 7 0
Undressed boards up to 24 feet long, not exceeding 12 inches wide:					
$\frac{1}{2}$ inch thick			11 0	8 0	6 0
$\frac{3}{4}$ inch thick			9 0	7 0	5 0
Rough lining boards, 6, 9, and 12 inches by $\frac{1}{2}$ inch					4 6
Wide boards, 6d. per 100 feet superficial extra for every inch in width over 12 inches and up to 24 inches, over 24 inches by arrangement. Rough heart, when in stock, 9s. per 100 feet superficial. Surface planing, 1s. per 100 feet extra, and will finish $\frac{1}{2}$ inch less in thickness.					
Flooring boards, seasoned: Planed, tongued, and grooved	$\left\{ \begin{array}{l} 4\frac{1}{2} \text{ by } 1 \\ 4\frac{1}{2} \text{ by } 1\frac{1}{2} \\ 6 \text{ by } 1 \\ 6 \text{ by } 1\frac{1}{2} \\ 9 \text{ by } 1 \\ 9 \text{ by } 1\frac{1}{2} \end{array} \right.$	$\left\{ \begin{array}{l} 4 \text{ by } \frac{1}{2} \\ 4 \text{ by } 1\frac{1}{2} \\ 5\frac{1}{2} \text{ by } \frac{1}{2} \\ 5\frac{1}{2} \text{ by } 1\frac{1}{2} \\ 8\frac{1}{2} \text{ by } \frac{1}{2} \\ 8\frac{1}{2} \text{ by } 1\frac{1}{2} \end{array} \right.$	14 0	11 0	9 0
Lining boards, seasoned: Planed, tongued, grooved, beaded, or V-jointed	$\left\{ \begin{array}{l} 4\frac{1}{2} \text{ by } \frac{1}{2} \\ 6 \text{ by } \frac{1}{2} \\ 9 \text{ by } \frac{1}{2} \end{array} \right.$	$\left\{ \begin{array}{l} 4 \text{ by } \frac{1}{2} \\ 5\frac{1}{2} \text{ by } \frac{1}{2} \\ 8\frac{1}{2} \text{ by } \frac{1}{2} \end{array} \right.$	13 0	10 0	8 0
Rusticated weatherboarding, seasoned: Rusticated, covers, 7 $\frac{1}{2}$ inches	9 by 1	8 $\frac{1}{2}$ by $\frac{1}{2}$	14 0	11 0	10 0
Boat boards, specially selected, planed two sides:					
$\frac{3}{4}$ inch			13 0		
$\frac{1}{2}$ inch			13 6		

The above prices are for timber in the yard.

N. B. — Special discounts to builders and contractors. Orders for lengths can not be guaranteed, but will be supplied as near as possible. Orders for specially selected or strictly all heart, will be charged 1s. per 100 feet superficial extra. First-class timber is free from shakes or large knots, and not over one-third of any piece clean sap (free from pin holes). Medium is all or any part clean sap, free from pin holes, but in special sizes not always available. Second class is all or part sap, with pin holes and other defects. Orders for long lengths, 6d. per 100 feet superficial extra for every foot additional in length from 25 feet up to 34 feet; above that length by arrangement. Flooring and rusticated weather boards, minimum length, 8 feet.

CLIMATE.

Meteorological observations have been made ever since the founding of the colony—at first of an irregular character, and made only with a view of comparing the climate of New Zealand with that of other countries. It was not, however, until 1859 that systematic observations were undertaken by a Government department. There are over 60 stations at which rainfall and weather are recorded.

Temperature.—The climate in many respects, it is said, resembles that of Great Britain. It is, however, far more equable, the extremes of daily temperature varying throughout the year by an average of 20° only, while London is 7° colder than the North Island of New Zealand, and 4° colder than the Middle Island. The mean annual temperature of the North Island is 57° F., and of the Middle or South Island 52° F., that of London and New York, it is said, being 51°.

The mean annual temperature of the different seasons for the whole colony is: In spring, 55°; in summer, 63°; in autumn, 57°, and in winter, 48°. The following are the means for the two warmest and the two coldest months in the principal localities, with their differences (Fahrenheit):

Auckland, 69.6 and 53.1; Nelson, 63.6 and 45.9; New Plymouth, 64.7 and 49.03; Christchurch, 65.2 and 44.3; Wellington, 64.6 and 47.8; Dunedin, 58.0 and 43.2.

The average difference between the mean temperature of the warmest and coldest months for New Zealand is 17°.

The climate on the west coast is more equable than on the east, the difference between the average summer and winter temperatures in the northwest portion of the North Island being nearly 4° less than in the southeast, while as between the corresponding portions of the South Island the difference is about 7°. This is due to the action of the equatorial winds, which impinge on the west coast. The extent of their influence can be better appreciated by comparing the annual fluctuations of temperature on the opposite seabords of the Middle Island. At Christchurch, on the east, the range is greater by 7° than at certain points on the west.

The following official tables show the averages which have been ascertained in respect of the temperature of the climate of New Zealand:

COMPARATIVE TEMPERATURES OF NEW ZEALAND.

I.—General abstract.

Stations.	South latitude.	Longitude east from Greenwich.	Number of years of observation.	Year.		Winter.	Spring.	Summer.	Autumn.	Difference of the warmest and coldest months.	Averages of yearly extremes.		Yearly fluctuation.
				° F.	° F.						Maximum.	Minimum.	
North Island.													
Mongonui	35 1	173 28	10	59.90	53.06	58.28	66.56	61.52	15.12	89.10	31.82	57.28	
Auckland	36 50	174 51	20	59.54	52.34	57.56	66.92	61.16	16.02	88.52	33.26	55.26	
New Plymouth	39 4	174 5	14	57.56	50.90	55.94	64.58	58.82	15.66	86.90	30.02	56.88	
Napier	39 29	176 55	10	57.56	49.10	57.74	66.20	57.02	19.26	90.00	32.10	57.90	
Wellington	41 16	174 47	14	55.58	48.74	54.50	62.24	56.66	14.76	78.44	32.18	46.26	
Wanganui	39 56	175 6	3	55.90	48.71	53.31	63.31	57.12	16.70	86.00	29.00	57.00	
South Island.													
Nelson	41 16	173 19	11	54.86	46.58	54.50	62.78	55.76	17.10	82.04	27.32	54.72	
Hokitika	42 42	170 59	10	52.34	45.50	51.62	59.18	53.06	14.76	74.12	28.22	45.90	
Bealey	43 2	171 31	9	46.76	37.40	46.04	54.86	48.56	18.18	78.08	12.38	65.70	
Christchurch	42 33	172 39	12	52.88	43.52	53.24	61.52	53.60	18.72	88.16	25.16	63.00	
Dunedin	45 52	170 31	17	50.72	43.52	50.54	57.20	51.80	15.30	84.74	29.84	54.90	
Invercargill	46 17	168 20	14	50.36	42.26	51.26	58.10	50.00	16.92	83.84	20.12	63.72	
Queenstown	45 2	165 39	3	51.01	40.01	50.92	64.02	52.31	21.25	84.60	23.21	61.39	

II.—Daily range of temperature.

[Difference of the mean daily extremes.]

Stations.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Year.
<i>North Island.</i>													
Mongonui	° F. 15.48	° F. 16.74	° F. 15.30	° F. 18.08	° F. 18.18	° F. 16.92	° F. 15.30	° F. 15.66	° F. 16.92	° F. 16.02	° F. 14.58	° F. 16.74	° F. 16.38
Auckland	18.90	19.80	20.88	19.80	18.08	16.92	15.30	15.48	16.74	15.84	10.50	18.00	17.82
New Plymouth	19.62	21.60	20.16	21.42	19.44	15.84	15.30	14.40	16.56	18.00	16.74	18.54	18.18
Napier	18.72	21.60	21.78	17.82	15.12	14.94	13.86	15.30	15.12	18.00	16.74	18.08	17.46
Wellington	13.32	13.50	12.42	12.42	11.70	11.16	10.62	10.62	11.52	11.88	12.24	13.50	12.06
<i>South Island.</i>													
Nelson	20.34	23.40	20.70	21.24	17.10	17.82	19.08	19.08	19.62	21.06	21.42	22.14	20.16
Hokitika	11.34	11.16	13.32	12.60	12.78	13.86	14.58	13.68	14.76	15.66	12.24	11.52	13.14
Christchurch	17.10	18.36	16.56	17.46	17.10	16.38	14.94	16.56	16.02	16.20	18.54	19.08	17.10
Dunedin	16.20	15.66	15.66	15.12	13.68	11.52	10.44	10.62	12.06	13.32	13.68	15.30	13.68
Invercargill	22.50	21.78	22.50	22.68	18.00	16.02	17.64	16.92	19.44	22.32	21.06	21.06	20.16

Rainfall.—The rainfall varies much at the different stations from year to year. The following official table shows the rainfall for the last three years:

Station.	1890.		1891.		1892.	
	Rainfall.	Number of days on which rain fell.	Rainfall.	Number of days on which rain fell.	Rainfall.	Number of days on which rain fell.
	Inches.		Inches.		Inches.	
Auckland	46.100	176	38.040	149	41.331	177
Tu Aroha	64.110	129	43.270	119	54.080	144
Rotorua	50.411	162	48.940	132	66.230	166
Wellington	45.230	165	35.125	166	67.656	184
Lincoln	14.836	104	20.575	98	27.883	124
Dunedin	27.984	155	32.734	151	47.552	160

The annual average rainfall at the 4 principal stations in New Zealand for the ten years ending December, 1892, was—

North Island:		Middle Island:	
Auckland	38.881	Lincoln.....	26.190
Wellington.....	48.296	Dunedin.....	36.863

Daily observations have been discontinued at Hokitika, on the west coast of the Middle Island, since 1880; but for ten years, 1871 to 1880, inclusive, the annual rainfall there averaged 122.990 inches; the greatest rainfall for any one of those years having been 154.446 inches and the smallest 96.170 inches.

The greatest rainfall in any twenty-four hours during the year 1892 occurred at Dunedin, 5.400 inches, on February 8.

The observations that have been taken show that the northern part of New Zealand is within the influence of the subtropical winter rainfall, the probability of rainfall in winter in that part of the colony being twice as large as in summer.

In the south, however, the rainfall, though irregular, is distributed more equally over the year. The chief difference to be observed is that on the west coast spring rains prevail, and on the east coast summer rains; while in the middle of the colony the driest season is autumn, and in the south it is winter and spring.

The contrast between the east and west coasts in the matter of rainfall is as striking as the difference in temperature. Thus, in the North Island, Napier on the east has only half the amount of rain that falls in Taranaki on the west. But the Middle Island, with its longitudinal range of lofty mountains, exhibits this feature in a still more marked manner, for the rainfall on the west is nearly five times that on the east. The excess of precipitation on the coast is clearly illustrated by the distribution of the glaciers on the opposite sides of the range; those on the west slope have an excessive supply of snow, and descend to a line where the mean annual temperature is 50° F., while on the east slope they descend only to the mean annual temperature of 37°. The winter snow line of the "Southern Alps" on the east side is 3,000 feet and that on the west side 3,700 feet.

Periods of lasting drought are almost unknown in New Zealand, and only in two instances do the records show a whole month at any station without rain.

Winds.—The configuration of the colony—its great length from north to south, compared with its breadth, its extent of coast line, and the division of the two principal parts by Cook Strait—renders it very subject to sea breezes. As a consequence, in parts of the country there is at times much violent motion in the atmosphere, and windy days are prevalent.

Owing to the fact that most atmospheric disturbances pass from west to east, with the center of the depression to the south of New Zealand, there is a marked prevalence of westerly winds throughout all seasons, but they are much modified by the form of the land. When the center passes to the north of New Zealand, the result is that the northeast winds impinge on the east coast, bringing rain, followed by cold southeasters, with heavy storms of rain and snow during winter in the south. The more common westerly winds begin in the north-northwest, with very heavy rain on the west coast, and gradually veering to southwest, when fair bright weather invariably sets in on that coast, but the same southerly wind, sweeping along the east side of the islands, brings heavy, strong weather, locally known as "southerly busters,"

which, from the shape of the coast, reach the region of Cook Strait as southeast storms. All the other winds are either land or sea drafts, with light, fine weather, or are moderate winds produced by the circulation of the atmosphere around anticyclonic areas of high barometric pressure, which are found to be far more persistent in their influence than the fast-moving cyclonic or low-pressure areas.

The number of days on which there were gales or high winds in 1892 at each station was as follows:

Station.	Number of days on which there were gales or high winds.	Maximum velocity of wind in any twenty-four hours.	Date.
		<i>Miles.</i>	
Auckland	45	.....	.....
Te Aroha	20	.....	.....
Rotorua	0	.....	.....
Wellington	65	805	Oct. 25
Lincoln	9	647	Sept. 8
Dunedin	18	530	May 12

Wellington, by reason of its position near the narrowest part of Cook Strait, is peculiarly subject to wind.

Thunderstorms.—Thunderstorms are most frequent when the changes of wind are most suddenly felt, from the moist equatorial currents to the cold polar currents of the southwest. On the west coast of New Zealand they are most frequent in spring, except south-west of Otago, where, during winter, thunderstorms are of almost daily occurrence.

Generally speaking, the climate of the colony is mild and pleasant. In the Middle Island it is, however, considerably colder than in the North Island particularly in the vicinity of the higher mountain ranges, upon which snow remains the whole year round. The climate of the North Island, or, at least, the northern portion of it, is semi-tropical in its character. Vegetation and tree foliage appear to grow without interruption throughout the various seasons. As a matter of fact, there are no well-defined seasons, such as spring, summer, autumn, and winter, in this part of the North Island. There is a wet season, which is supposed to be the winter, but in this respect it would be difficult to distinguish between summer and winter, as it rains almost as much in one season as in the other. Hence it is that there is scarcely any perceptible cessation in the growth of vegetation in consequence of the constant rainfall.

GENERAL BUILDING.

General building is not prosperous at present, owing to the depression that has prevailed here for a number of years past. But the prospect is brightening, and indications are very encouraging that in the near future the building trade will soon again assume a healthier aspect.

Large vessels are not often built in this country, the shipbuilding being practically confined to large-sized schooners and the smaller craft generally.

Railway building is very limited at present and has been since the colony has ceased to borrow. There are no new lines projected, nor is there any likelihood that there will be for some time to come. There are, however, several extensions in course of construction or completion, but even these are not being pushed very vigorously, being largely utilized for the purpose of affording work for the real needy and deserving laborers found in the ranks of the unemployed.

EXTENSION OF LUMBER TRADE.

I regret my utter inability to offer any practicable suggestions as to the best means to be adopted to promote the sale of American lumber in this colony at present. As already stated, there is a little demand for Oregon pine, spruce, hickory, and ash, but I can not at present see how sales can be increased unless the manufacturers of such timbers are prepared to establish a general agency for the colony, and even then they must be prepared to sustain a loss for a time. The woods above mentioned are well known and their superiority fully appreciated, but I question whether the establishment of an agency here, in consequence of the limited population of the colony and the small demand for such supplies, would pay. I merely offer the suggestion, but do not recommend it.

JNO. D. CONNOLLY,
Consul.

AUCKLAND, *February 24, 1894.*

NEW SOUTH WALES.

NATIVE WOODS.

The following list embraces, I think, the entire catalogue of what are now recognized as the commercial timbers of New South Wales, classified by competent authority. The first is the botanical, the second, in parenthesis, the vernacular name:

Avicennia officinalis, Verbenacæ (mangrove): An erect, low branching tree; timber is valuable on account of its inlocked fiber; used for knees of boats, stone-masons' mallets, and bullock yokes. Habitat, tidal estuaries, New South Wales. Height, 20 to 30 feet; diameter, 20 inches.

Banksia integrifolia, Proteacæ (honeysuckle): Timber coarse grained and tough; used for knees and ribs of boats, bullock yokes, etc.; takes a good polish. Hab., open and scrub forests, northern and southern coast districts, New England, etc.; plentiful. Height, 40 to 50 feet; diameter, 1 to 2 feet.

Casuarina glauca, Casuarinæ (swamp oak): Timber tough and strong; used for shingles, staves, and fence posts. Hab., interior and coast districts; usually in damp situations; plentiful. Height, 60 to 80 feet; diameter, 1½ to 2 feet.

- Casuarina torulosa*, *Casuarina* (forest oak): Timber handsome, sometimes remarkably heavy; valuable for cabinet work, shingles, etc.; excellent fuel. Hab., open forests from Illawarra to the Richmond River, westward to New England and Bathurst. Height, 80 feet; diameter, 2 feet.
- Cedrela australis*, *Meliaceæ* (red cedar): Timber very valuable, dark red, and often beautifully marked; light, easily wrought, and durable; much used and valued for furniture, patterns, and all kinds of fittings in house and shipbuilding. Hab., brush forests northern and formerly in southern coast districts; becoming scarce; efforts now being made to conserve and propagate this timber. Height, up to 100 and even 200 feet; diameter, up to 6 and even 10 feet (exceptionally).
- Dysoxylon Fraserianum*, *Meliaceæ* (rosewood): Timber rose scented, red, strong, closegrained, and durable; much valued for furniture-making, ship-building, turnery, and indoor work, etc.; one of the largest and best of indigenous timber trees. Hab., brush forests northern and southern coasts districts; moderately plentiful. Height, 100 feet; diameter, 4 to 6 feet.
- Eucalyptus botryoides*, *Myrtaceæ* (bastard mahogany): Timber strong and durable, used for felloes of wheels and boat knees. Hab., coast districts. Height, 40 to 50 feet; diameter, 24 inches.
- Eucalyptus crebra*, *Myrtaceæ* (grey ironbark): Timber hard, heavy, tough, strong, inlocked, and durable; used for poles and shafts of carriages, spokes of wheels, railway sleepers, etc. Hab., open forests, northern and southern coast districts, extending some distance inland. Height, 100 to 150 feet; diameter, 2 to 5 feet.
- Eucalyptus longifolia*, *Myrtaceæ* (woollybutt): Timber strong and durable; used for wheelwrights' work, fencing, felloes, spokes, shafts, house building. Hab., open forests, on rich alluvial flats, coastal districts; plentiful. Height, 100 to 150 feet; diameter, 3 to 5 feet.
- Eucalyptus macrorrhyncha*, *Myrtaceæ* (stringybark): Timber excellent for house carpentry, flooring boards, fencing, etc. Hab., open forests, chiefly west of the dividing range.
- Eucalyptus microcorys*, *Myrtaceæ* (tallowwood): Timber strong, handsome, and durable; very useful for building purposes, and especially for flooring boards; used also for palings, etc. Hab., coast districts. Height, 100 to 150 feet; diameter, 6 to 8 feet.
- Eucalyptus pilularis*, *Myrtaceæ* (blackbutt): Timber excellent for house carpentry, ship building, and for any purpose where strength and durability are required. Hab., open forests from Twofold Bay to the Hastings River, and extending a considerable distance inland. Height, 100 to 200 feet; diameter, 3 to 8 feet.
- Eucalyptus paniculata*, *Myrtaceæ* (she or pale ironbark): Timber much valued, hard, tough, strong, unlocked, and durable; used for bridges, sleepers, railway carriages, beams, poles of bullock drays, piles, spokes of wheels, etc. Hab., open forests, northern and southern coast districts; plentiful. Height, 100 to 150 feet; diameter, 4 to 5 feet.
- Eucalyptus populifolia* (red box): Timber hard, close grained, and durable; used for posts and building purposes, mauls, railway sleepers, etc.; handsome wood when polished. Hab., on dry, stony ridges, southern and western interior districts; moderately plentiful. Height, 40 to 50 feet; diameter, 24 inches.
- Acacia Cunninghamii*, *Leguminosæ* (bastard myall): Wood close grained; useful for cabinet purposes. Very homogeneous. Analysis of bark—tannin, 9.13 per cent; extract, 1.15 per cent. Hab., northern scrub forests and New England; moderately plentiful. Height, 20 to 30 feet; diameter, 9 to 12 inches.
- Acacia decurrens*, *Leguminosæ* (green wattle): Timber light, tough, and strong, excellent fuel. Bark rich in tannin; varying from 25 to 35 per cent. Hab., northern and southern coast districts; plentiful. Height, 20 to 50 feet; diameter, 6 to 9 inches.

- Acacia doratoxylon*, Leguminosæ (currawang): Timber dark-colored, hard, heavy tough, close-grained, and durable; used for gates, buggy poles, furniture, etc., and formerly used by the Aborigines for spears and boomerangs; leaves eaten by stock. Hab., dry, stony ridges, southern, southwestern, and western interior districts; moderately plentiful. Height, 20 to 30 feet; diameter, 6 to 12 inches.
- Acacia homolophylla*, Leguminosæ (curly yarran): Timber much sought after for turnery work. Wood hard and fragrant; very durable. Hab., central and western New South Wales. Height, 20 to 30 feet; diameter, 6 to 12 inches.
- Acacia melanoxylon*. (R. Br.) Leguminosæ (blackwood): Timber hard and close-grained; considered one of the most valuable woods; much prized for furniture, general cabinet work, carriage building, billiard tables, etc. The figured wood is cut into veneers; when polished it closely resembles walnut wood. Hab., the extreme south only of New South Wales. It is abundant in Tasmania and Victoria. Height (in New South Wales), 50 to 80 feet; diameter, 18 to 24 inches.
- Acacia Oswaldi*, Leguminosæ (umbrella bush): Timber faintly scented, dark-colored, hard, heavy, close-grained, and durable; useful for turnery and cabinet work; a dense shade tree; leaves eaten by stock. Hab., open plains, Lachlan, and other interior districts; not plentiful. Height, 15 to 20 feet; diameter, 6 to 9 inches.
- Acacia pendula*, Leguminosæ (myall): Timber hard, close-grained; in an unpollished state it preserves a peculiar fragrance of violets, and is in consequence in much request for making glove, handkerchief, and other fancy boxes, and tobacco pipes. Hab., central and western New South Wales. Height, 30 to 40 feet; diameter, 18 to 20 inches.
- Acacia penninervis*, Leguminosæ (hickory or mountain hickory): Timber hard, moderately heavy, close-grained, and durable; used for cabinet purposes, and the bark for tanning. Hab., brush forests, northern and southern coast districts and Blue Mountains; plentiful. Height, 30 to 40 feet; diameter, 12 to 18 inches.
- Acacia salicina*, Leguminosæ (koobah, or native willow): Timber close-grained, tough, heavy, dark-brown, and nicely marked; takes a high polish; used in furniture and cabinet-making. Hab., portions of central, and in western New South Wales. Height, 30 to 50 feet; diameter, 12 to 18 inches.
- Angophora subvelutina*, Myrtaceæ (broad-leaved apple tree): Timber moderately heavy, tough, and very hard when dry; used for wheel-naves, bullock yokes, posts, and rails; dresses and polishes well. Hab., northern rivers and southern coast districts. Height, 70 to 80 feet; diameter, 24 to 36 inches.
- Aphananthe philippinensis*, Urticæ (elm): Timber light in color, close-grained; used for ceilings, linings, etc. Hab., northern New South Wales. Height, 80 to 90 feet; diameter, 15 to 18 inches; not plentiful.
- Arancaria Cunninghamii*, Coniferae (hoop or colonial pine): Timber strong and durable, but soon decays when exposed to alternate damp and dryness. Is largely used, and as a cheap, soft wood yields spars 80 feet to 100 feet long; pale in color. Hab., northern New South Wales. Height, 150 to 200 feet; diameter, 24 to 48 inches.
- Alphitonia excelsa*, Rhamnæ (red ash): Timber hard, firm, and close-grained. Hab., brush forests of coast districts of New South Wales. Attains a height of 100 feet.
- Banksia integrifolia*, Proteaceæ (white honeysuckle): Timber tough and strong; used for boat knees and ribs, bullock yokes, etc. Hab., open and scrub forests, northern and southern coast districts; plentiful. Height, 40 to 50 feet; diameter, 1 to 2 feet.
- Backhousia myrtifolia*, Myrtaceæ (grey myrtle or lavewood): Timber close-grained, hard, and durable; used for tool handles, mallets, and is suitable for turnery. Hab., banks of creeks and damp situations; northern and southern districts moderately plentiful. Height, 30 to 40 feet; diameter, 12 to 18 inches.

- Backhousiasciadophora*, Myrtaceæ (myrtle): Timber hard, close-grained; not generally used or known, but considered likely to be suitable for wood engraving, turnery, etc. Hab., mountain scrub forests, northern coast districts; plentiful in places. Height, 80 to 90 feet; diameter, 2 feet.
- Ceratopetalum apetalum*, Saxifrageæ (coachwood): Timber fragrant, light, soft, tough and close-grained; used for cabinetwork, boat and coach building. Hab., in gullies northern and southern coast districts. Height, 50 to 70 feet; diameter, 12 to 24 inches.
- Casuarina suberosa*, Casuarieæ (black oak): Timber useful for cabinetwork; used for bullock yokes, mauls, tool handles, shingles. Hab., coastal and inland. Height, 40 to 50 feet; diameter, 18 to 24 inches.
- Cupania semiglaucæ*, Sapindaceæ (black ash): Timber, hard, tough, close-grained, elastic; not much used. Hab., brush forests, northern and southern coast districts; not plentiful. Height, 40 to 50 feet; diameter, 1 to 1½ feet.
- Cryptocorya obovata*, Laurineæ (sycamore, or she beech): Timber light, soft, and durable; used for flooring boards, staves, and inside house carpentry. Hab., brush forests, northern coast districts; not plentiful. Height, 60 to 70 feet; diameter, 2 to 3 feet.
- Dysoxylon muelleri*, Meliaceæ (turnip-wood): Timber red, easily wrought, and durable; used for cabinetwork, cigar boxes, and interior fittings, etc. When fresh cut it emits an odor similar to that of a Swedish turnip. Hab., brush forests, northern coast districts; not plentiful. Height, 100 to 120 feet; diameter, 3 to 4 feet.
- Dysoxylon fraserianum*, Meliaceæ (rosewood): Timber resembles "red cedar." It is beautifully marked, and suitable for cabinetwork, etc. Fragrant. Hab., northern coast districts. Height, 80 to 100 feet; diameter, 2 to 3 feet.
- Daphnandra micrantha*, Monimiaceæ (a yellow wood): Timber fragrant; yellow, when fresh, close-grained, easily wrought, and takes a good polish; used for cabinetwork, etc.; bark intensely bitter. Hab., brush forests, northern coast districts; plentiful in places. Height, 100 to 120 feet; diameter, 3 feet.
- Doryphora sassafras*, Monimiaceæ (sassafras): Timber is somewhat soft, but suitable for the inside lining of houses and some kinds of furniture, also for packing-cases; the wood is fragrant, and disagreeable to all kinds of vermin. Light in weight when seasoned, and light colored. Hab., coastal districts. Height, over 50 feet; diameter, 24 to 36 inches.
- Eucalyptus Baileyana*, Myrtaceæ (a stringybark): Timber very tough, suitable for tool handles, etc.; not much used. Hab., open forests, on ridges, north coast districts; not plentiful. Height, 50 to 100 feet; diameter, 2 to 3 feet.
- Eucalyptus microcorys*, Myrtaceæ (tallow-wood): Timber of a greasy nature, strong and durable; used for flooring and general purposes, boatbuilding, etc. Hab., northern open forests, coast districts; plentiful. Height, 100 to 150 feet; diameter, 36 to 72 inches.
- Eucalyptus microtheca*, Myrtaceæ (coolibah): Timber hard, heavy, and close grained; useful in building, but not much used. Hab., plains, subject to variation, seldom on the banks of running streams; Lachlan and Darling River districts, extending to the Barrier Ranges. Height varies greatly, sometimes little better than a shrub to 50 feet.
- Eucalyptus pilularis*, Myrtaceæ (blackbutt): Timber excellent for house carpentry, bridge-planking, ships' decks, paving cubes, etc.; is coming greatly into favor, and is consequently used largely; is a valuable species of *Eucalyptus*, straight in grain, moderately heavy. Hab., open forests from Twofold Bay to the Hastings River, and extending some distance inland. Height, 100 to 200 feet; diameter, up to 15 feet (exceptionally).
- Eucalyptus polyanthema*, Myrtaceæ (bastard box): Timber remarkably tough, hard, and elastic; used for naves, felloes, and spokes of wheels, agricultural implements,

bridge work, etc. Hab., open forests, usually on banks of creeks and damp situations in the southern coast and interior districts; moderately plentiful. Height, 50 to 60 feet; diameter 2 to 3 feet.

Eucalyptus saligna, Myrtaceæ (flooded gum, blue gum): Timber strong and durable, splendid wood, in good repute for building purposes, as it does not readily take fire, and is one of the straightest in the grain and easiest to work of the *Eucalyptus* timbers; it is also used for shipbuilding, ship planks, wheel naves, felloes, etc.; timber varies; supposed due to situation and soil where growing. Hab., open forests on banks of creeks, and rich, moist, alluvial soil; northern and southern coast districts; plentiful. Height, 100 to 120 feet; diameter, 36 to 60 inches.

Eucalyptus sideroxylon, Myrtaceæ (red ironbark): Timber highly esteemed for strength and durability, and much used for large beams, girders, sleepers, draw-poles, fuel, and other purposes, in which strength and durability are required. Hab., open forests northern and southern coast districts, and central districts, New South Wales; plentiful. Height, 100 to 150 feet; diameter, 3 to 5 feet.

Eucalyptus sideroxylon, Myrtaceæ (mugga): Timber soft in character when compared with other ironbarks; is not plentiful, being found in small belts or patches; chiefly in central New South Wales, Macquarie, and Bogan River districts; does not grow to any size.

Eucalyptus tereticornis, Myrtaceæ (red gum): Timber hard, heavy, close grained and durable; used for posts and rails of fences; bridge, house, and ship building, wheelwrights' work, etc. Hab., open forests, northern and southern coast districts. Height, 80 to 100 feet; diameter, 36 to 48 inches.

Eucalyptus virgata, Myrtaceæ (mountain ash): Timber tough, durable, and elastic, splits freely; used for staves of casks, shingles, poles, shafts of drays, palings, rails, and rough buildings. Hab., open forests, southern coast districts and Blue Mountains; plentiful. Height, 100 to 150 feet; diameter, 3 to 4 feet.

Eugenia Ventenatii, Myrtaceæ (myrtle): Timber close grained and tough; used for tool handles, ribs of boats, and the flooring boards of verandas. Hab., brush forests, Hastings, Macleay, Clarence, and Richmond rivers. Height, 40 to 60 feet; diameter, 24 to 36 inches.

Flindersia Oxleyana, Meliaceæ (light yellow wood): Timber strong, durable, fine grained, and of good color; used in boatbuilding, cabinetwork, and to many purposes to which cedar is applied; useful wood for fancy work, owing to pale yellow color; resembles beech; suitable for hand-screen making, buggy shafts, etc.; not plentiful. Hab., northern brush forests, New South Wales. Height, 80 to 100 feet; diameter, 24 to 42 inches.

Flindersia Bennettiana, Meliaceæ (bogum-bogum): Timber close grained, useful for saddle-making, staves, etc.; not much used. Hab., northern districts, New South Wales. Height, 70 to 90 feet; diameter, 18 to 26 inches.

Flindersia Schottiana, Meliaceæ (ash): Timber hard, close grained, prettily marked, and of a pale yellow color; used for shingles and staves and for cabinetwork. Hab., Hastings River, New South Wales. Height, 30 to 60 feet; diameter, 18 to 30 inches.

Frenela robusta, Coniferæ (white or common pine): Timber is very full of knots, polishes well, and shows to advantage; has a camphoraceous odor; varies in color from light to dark brown; is very durable, and resists white ants to a great extent; of a brittle nature; used for building in central districts, lining-boards, and ceilings. Hab., central and western New South Wales. Height, 60 to 70 feet; diameter, 18 to 24 inches.

Frenela Macleayana, Coniferæ (Port Macquarie pine): Timber light and useful; used for indoor purposes, weatherboards, deals, battens, etc. Hab., northern New South Wales. Height, 20 to 30 feet; diameter, 6 to 12 inches.

- Gmelina Leichhardtii*, Verbenaceæ (white beech): Timber strong, durable, and easily worked; prized for decks of vessels, flooring of verandas, etc.; light colored, and useful for turning and furniture-making; one of the most useful of our timbers. Hab., brush forests, northern and southern coast districts; not very plentiful. Height, 120 to 150 feet; diameter, 36 to 60 inches.
- Melaleuca leucadendron*, Myrtaceæ (white tea-tree): Timber hard, heavy, and close-grained; said to be imperishable underground. Hab., northern and southern coast districts; plentiful. Height, 50 to 60 feet; diameter, 24 to 36 inches.
- Melia composita*, Meliaceæ (white cedar): Timber soft, easily worked; wood from matured trees is found to be fairly durable; splits easily; handsomely marked and polishes well; much valued for staves and the finer kinds of coopers' work; a beautiful flowering and foliated shade tree; suitable for planting in public parks in warm situations. Hab., brush forests, northern coast districts; moderately plentiful. Height, 80 to 100 feet; diameter, 3 to 4 feet.
- Olea paniculata* (marble wood): Timber hard, close grained, and durable; heartwood nicely mottled; used for staves, and suitable for cabinetwork and turnery. Hab., brush forests, northern and southern coast districts; not plentiful. Height, 40 to 50 feet; diameter, 2 to 2½ feet.
- Petalostigma quadriloculare*, Euphorbiaceæ (native quince): Timber hard, close grained, and durable; prettily marked, but not used. Hab., open forests on margins of brush forests, northern coast districts; not plentiful. Height, 10 to 12 feet; diameter, 6 inches.
- Rhodamnia argentea*, Myrtaceæ (white myrtle): Timber hard, fine grained, and durable; suitable for carving, turning, fancy, and cabinetwork, etc. Hab., brush forests, northern coast districts; moderately plentiful. Height, 80 to 100 feet; diameter, 2 to 3 feet.
- Syncarpia leptopetala*, Myrtaceæ (turpentine myrtle): Timber hard, heavy, and durable; used for turnery, etc. Hab., gullies, northern coast districts; not plentiful. Height, 50 to 60 feet; diameter, 24 inches.
- Syncarpia laurifolia* (turpentine): Timber hard, heavy, strong, and durable; used extensively for piles; used also for posts, shipbuilding, sleepers, and general building purposes; a difficult wood to burn, and very durable underground. Hab., in gullies, northern and southern coast districts, and Blue Mountains; plentiful. Height, 100 to 150 feet; diameter, 36 to 60 inches.
- Stenocarpus salignus*, Proteaceæ (red silky oak, beefwood): Timber highly appreciated and now scarce; used for making furniture, picture frames, walking sticks, veneers, and the finer kinds of coopers' work. Color, red-brown, and somewhat mottled; somewhat hard in texture, but easily worked. Hab., northern coast districts and Illawarra, New South Wales. Height, 30 to 50 feet; diameter, 18 to 24 inches.
- Tristania conferta*, Myrtaceæ (brush box): Timber hard and durable, heavy, and close grained; used for bridge and housebuilding, shipbuilding, plow beams, wheelwrights' work, etc., and largely planted for shade purposes in towns. Hab., open forest ridges, northern coast districts. Height, 80 to 120 feet; diameter, 36 to 60 inches. Plentiful.
- Tristania suaveolens*, Myrtaceæ (broad-leaved water gum): Timber remarkably strong, elastic, tough, close grained, and durable; used for mallets, tool handles, cogs for wheels, posts, etc. Hab., open and brush forests, northern coast districts; moderately plentiful. Height, 60 to 80 feet; diameter, 1½ to 2 feet.
- Tarrietia argyrodendron*, Sterculiaceæ (ironwood): Timber white, close grained, hard, and durable; used for building purposes and staves. Hab., brush forests, northern coast districts; plentiful. Height, 80 to 100 feet; diameter, 3 to 4 feet.
- Vitex lignum-vitæ*, Verbenaceæ (lignum-vitæ, or white beech): Timber valuable and useful, durable, close grained, and does not shrink in drying, much used for decks of vessels and veranda floors; suitable for turnery and cabinetwork.

- Hab., brush forests, northern coast districts; not plentiful. Height, 70 to 80 feet; diameter, 24 inches.
- Zanthoxylum brachyacanthum*, Rutaceæ (satinwood, a yellow wood): Timber bright, soft, silky, close grained, easily wrought; used for cabinetwork, etc. Hab., brush forests, northern coast districts, New South Wales; not plentiful. Height 40 to 50 feet; diameter, 10 to 15 inches.
- Castanospermum australe*, Leguminosæ (black bean, or Moreton Bay chestnut): Timber resembles walnut wood; is dark colored, handsome, close grained, and durable; used for cabinetwork; is coming into more general use than formerly, as its qualities are better known; a valuable timber and shade tree, and very ornamental; stock-owners destroy this tree, owing to their cattle being poisoned by eating its seeds; the seeds are soaked in water, roasted, and eaten by the aborigines. Hab., brush forests, northern coast districts; moderately plentiful. Height, 120 to 130 feet; diameter, 4 to 5 feet.
- Dysoxylon Frasierianum*, Meliaceæ (rosewood): Timber resembles red cedar. It is beautifully marked, and suitable for cabinetwork, etc.; fragrant. Hab., northern coast districts. Height, 80 to 100 feet; diameter, 2 to 3 feet.
- Dysoxylon Muelleri*, Meliaceæ (red bean): Timber red, easily wrought, and durable; used for cabinet-work, cigar boxes, interior fittings, etc. When fresh cut it emits an odor similar to that of a Swedish turnip. Hab., brush forests, northern coast districts; not plentiful. Height, 100 to 120 feet; diameter, 3 to 4 feet.
- Eucalyptus rostrata*, Myrtaceæ (red gum): Timber strong, hard, heavy, close grained, and durable; almost impervious to white ants and teredo; used for ship and boat building, piles, flooring boards, weather boards, planking, railway sleepers, bridges, wharves, and building purposes generally; one of the best and most valuable hardwoods. Hab., open forests, chiefly on river banks; and rich alluvial flats subject to inundation; Murray and Edwards rivers, and most of the rivers of the interior; plentiful. Height, 100 to 200 feet; diameter, 3 to 5 feet.
- Elæocarpus grandis*, Tiliaceæ (mountain ash): Timber, white, tough, soft, close grained, and easily wrought; used for building purposes, etc. Hab., brush forests, northern coast districts; moderately plentiful. Height, 100 to 150 feet; diameter, 4 to 5 feet.
- Gmelina Leichhardtii*, Verbenaceæ (beech): Timber strong, durable, and easily worked; prized for decks of vessels, flooring of verandas, etc.; light-colored, and useful for turning and furniture-making; one of the most useful of our timbers. Hab., brush forests, northern and southern coast districts; not very plentiful. Height, 120 to 150 feet; diameter, 36 to 60 inches.
- Owenia cepiodora* (onion wood): Timber valuable for cabinetwork; of a red color and prettily marked, sometimes very handsome; is durable; when freshly cut it emits a peculiar odor. Hab., brush forests, northern coast districts; not plentiful. Height, 100 to 124 feet; diameter, 3 to 4 feet.
- Rhus rhodanthema*, Anacardiaceæ (yellow cedar): Timber close grained and durable; takes a good polish; suitable for carving, turning, cabinet and fancy work. Hab., brush forests, northern coast districts; not plentiful. Height, 50 to 60 feet; diameter, 2 to 3 feet.

Of course there are many other timbers in New South Wales, but believing it is the design of the Government to have reports cover only the space necessary for information which is of practical use, I selected those varieties now having commercial value.

Besides the above native woods, there are large quantities of pine, fir, cedar, and redwood consumed in this and other Australian colonies, though, owing to the prevailing dullness and the large stocks on hand, the demand is very light,

LUMBER MOST USED.

For uses requiring long and strong timbers, say for scaffolding, joists, rafters, and the like, especially where uniform strength is needed without too great weight, "Oregon pine," or what is known in the Pacific States as "fir," is most highly prized and most extensively used. It comes chiefly from Washington and Oregon, and in the rough state.

Redwood is a favorite timber for inside work, as it works so much more easily than the native woods and finishes as finely. It is imported in the rough and dressed at the local mills.

As a rule the native woods of Australia are very hard and heavy. While many of them take a very fine polish and can be richly finished, they are hard to work and to handle. Ironbark stands first on Lloyd's estimate as a shipbuilding timber.

For flooring the Kauri pine of New Zealand, of which there are considerable forests, is regarded as very good, and is much in use, though it is inferior to the fir of the Pacific States when the latter is sawed with proper regard to the grain. The Kauri pine has little strength, as there seems to be a lack of continuity of fiber, and it is certainly less durable than fir.

There are complaints that the Oregon pine (fir) flooring, when worn sometime, splinters or scales up, but that comes from its being sawed without proper regard to grain. The Australians want the best of everything, and I feel confident that the long, clear flooring of the Pacific Northwest fir, sawed properly and dressed to, say 4 inches in width, would take the market—when there is one.

For cabinetwork, carriages, carts, vehicles, and most machinery the strong and heavy native woods are chiefly used, while for cooperage the timbers of New Zealand and Tasmania are preferred.

IMPORTATION OF LUMBER.

The importations of 1893 were 8,118,925 superficial feet of dressed lumber, valued at \$271,036, and the importations were distributed as follows:

Whence imported.	Quantity.	Value.	Whence imported.	Quantity.	Value.
	<i>Sup. feet.</i>			<i>Sup. feet.</i>	
United Kingdom.....	1,169,123	£6,728	Germany.....	2,850	£131
Victoria.....	743,674	7,522	Norway.....	3,180,969	14,320
Queensland.....	11,285	146	Sweden.....	1,216,590	9,430
South Australia.....	541,977	6,222	United States.....	1,055,617	9,197
New Zealand.....	166,838	1,404			
Canadian Dominion.....	100,000	600	Total.....	8,118,925	55,700

Of rough or undressed lumber (all of what we in the United States call "lumber" is here called "timber," and it is reckoned by the hundred superficial feet instead of by the thousand) there was imported in the

same year 59,543,868 feet, valued at \$1,729,396, and the importations were distributed as follows:

Whence imported.	Quantity.	Value.	Whence imported.	Quantity.	Value.
	<i>Sup. feet.</i>			<i>Sup. feet.</i>	
United Kingdom.....	431,248	\$23,627	Brazil.....	2,219	\$210
Victoria.....	3,812,164	14,676	China.....	47,522	450
Queensland.....	708,334	5,967	Germany.....	840	10
South Australia.....	19,224,569	149,915	Japan.....	64,700	495
Tasmania.....	925,950	7,017	New Caledonia.....	3,344	21
New Zealand.....	11,810,760	51,836	Norway.....	938,189	5,538
Canadian Dominion.....	2,614,305	9,700	South Sea Islands.....	10,706	149
Fiji.....	12,135	15	United States.....	19,921,796	107,493
Hongkong.....	984	3			
New Guinea.....	8,000	9	Total.....	59,543,868	357,048
Borneo.....	11,094	117			

Upon careful inquiry I find that a great portion of the timber for which South Australia has the credit, in the tables of importations, is really from Oregon and Washington, and taken to the Broken Hill mines in New South Wales through South Australia, entered at Adelaide or Fort Price.

DUTY.

There is an import duty of 3s. per 100 superficial feet, or about \$7.20 per 1,000 on dressed lumber, and \$3.60 per 1,000 on rough lumber. This duty does not apply to ash, hickory, oak, sycamore, or sandal wood, when undressed. On palings the duty is 1s. per 100; laths, 9d. per 1,000; shingles, 1s. per 1,000; pickets, 1s. per 100 feet, superficially dressed; doors, sashes, and shutters, 2s. each.

PRICES.

At present (March, 1894) times are dull, consumption is very light, the stocks on hand are large, and prices are low. "Oregon pine," which means the Puget Sound, or Oregon, fir, is worth but 8s. per 100, or say \$20 per 1,000 in the local market, by cargo. Freight is now very low, but 27s. 6d., or \$6.87 per 1,000, and with a duty of \$3.60 per 1,000, it leaves but \$9.53 per 1,000 for the purchase of the lumber, and the profit, insurance, commission, etc. This is a poor outlook for our Pacific slope lumber trade in Australia.

Redwood is worth about 12s. per 100, or about \$30 per 1,000, rough, and the demand is light.

Redwood shingles are worth from 65 to 75 cents per 100, with small and rather decreasing demand.

The native hard woods are worth from \$24 to \$36 per 1,000, according to kind and quality. This is about the price of imported hard woods also, though good hickory is higher in small quantities.

It may be well here to remark that the prices above given for "Oregon pine," \$20 per 1,000, is low, but it is the price (given me by a custom house officer and an American shipmaster) received for a cargo just from Port Blakely, on Puget Sound. I incline to think this price

very low, possibly the lowest reached but no lower than given me by local dealers.

CLIMATE.

Sydney is situated in latitude $33^{\circ} 51'$ south and longitude $151^{\circ} 13'$ east. It is well known by all observers that the climate in the south temperate zone is more equable and salubrious than in like latitudes in the northern hemisphere, and while, owing to local causes, there are great differences in the humidity of districts not widely separated, there is a remarkable evenness of temperature ranging through the seasons.

I think the following table taken from "The Year Book of Australasia" for 1893 answers the question in a most concise form:

Climate of New South Wales during the year 1892.

[Contributed by H. C. Russell, esq., B. A., C. M. G., F. R. S., F. R. M. S., etc., government astronomer for New South Wales.]

Stations.	Latitude, south.	Longitude, east.	Altitude.	Barometer at 32° and mean sea level.	Temperature.					Mean 9 a. m. Cloud.	Prevailing wind.	Rainfall.		
					Mean in shade.	Mean humidity.	Mean maximum in hottest month.	Mean minimum in coldest month.	Mean daily range.			Total.	Number of days.	Percentage (+) above or (-) below average.
	°	'										Inches.		
Albury	36.6	147.0		572	30.039	60.8	74.6	93.0	35.1	24.9	4.6	E.	29.530	103
Armidale	30.32	151.38	3,278	30.047	56.5	74.8	82.6	32.3	23.7	4.9	W.	44.930	116	+40
Bathurst	33.24	149.37	2,200	30.070	58.1	78.7	89.5	28.6	28.9	4.5	SW.	31.290	117	+30
Bourke	30.3	145.58	349	30.055	70.0	69.3	107.7	38.1	29.5	2.1	NE.	8.150	37	+53
Cape St. George	35.12	150.45	1,775	30.075	61.3	73.6	75.9	48.4	13.7	6.6	SE.	57.580	128	+10
Cooma	36.12	149.9	2,637	30.038	53.3	75.8	83.9	27.3	25.7	6.6	NW.	23.760	112	+20
Deniliquin	35.32	145.2	320	30.108	61.6	73.1	97.7	31.3	32.7	3.5	SW.	16.910	75	-2
Dubbo	32.18	148.33	863	30.092	63.4	71.4	94.8	34.5	27.4	3.7	E.	28.600	90	+26
Eden	37.0	149.59	107	29.941	59.7	83.1	75.9	44.6	14.9	5.5	SW.	41.680	127	+15
Forbes	33.27	148.5	808	30.068	62.5	75.7	95.2	36.2	24.6	1.3	NW.	25.240	86	+18
Goulburn	34.45	149.45	2,129	30.035	56.7	70.8	84.8	32.9	23.1	3.5	W.	25.680	89	-4
Grafton	23.43	152.56	27		68.9		91.6	44.8	24.2	3.6	SE.	52.840	111	+38
Hay	34.30	144.56	305	30.020	63.7	73.4	95.3	36.5	27.0	3.3	S.	15.550	81	+2
Inverell	29.48	151.10	1,953	30.034	60.8	72.9	85.4	36.6	20.3	3.9	S.	42.420	99	+35
Kiandra	35.52	148.32	4,940	30.067	45.3	74.9	71.5	22.8	19.5	4.9	NW.	56.990	159	-12
Maitland	32.47	151.35	98		59.4		86.3	33.9	25.7	4.1	SE.	53.690	126	+56
Mount Victoria	33.36	150.15	3,490	29.958	53.2	75.0	76.5	34.9	17.9	5.7	W.	49.700	132	+33
Mudgee	32.35	149.35	1,500		63.7	79.0	92.1	36.0	24.9	4.4	W.	34.250	87	+27
Newcastle	32.55	151.50	34	30.049	63.6	72.0	78.7	47.1	12.5	4.9	S.	71.790	215	+49
Orange	33.18	149.9	2,891		55.8		81.5	35.4	17.5	4.2	NE.	42.270	121	+9
Port Macquarie	31.25	152.54	49	30.027	63.4	84.0	80.0	44.0	17.2	4.2	SW.	80.870	0	+27
Sydney	33.51	151.13	146	30.053	62.5	78.1	78.3	46.5	12.4	5.3	NE.	69.256	189	+37
Wagga Wagga	35.8	147.24	615	30.111	61.7	74.0	99.0	31.1	32.1	3.8	E.	20.910	88	-10
Walgett	30.2	148.10	522	30.079	68.5	67.0	98.8	40.0	24.8	2.4	N.	14.490	64	-30
Wentworth	29.35	150.37	1,106		61.6	73.0	89.7	33.7	26.6	3.3	NW.	37.690	79	+28
Wilberforce	34.8	142.0	144	30.159	60.9	73.0	89.9	32.3	27.2	3.8	NNE.	12.910	66	+7
Wilcannia	31.31	143.23	246	30.044	64.4	56.0	101.9	32.2	33.7	2.6	S.	2.890	37	-32
Woolongong	34.25	150.56	67	30.040	61.9	71.0	80.1	43.9	19.1	4.1	SW.	58.330	120	-36

GENERAL BUILDING.

There is very little building of any kind now going on in New South Wales. In the rural districts there is little imported lumber used, even

in prosperous times, as local mills furnish native timber cheaper than the imported article can be procured.

For fencing, the material is prepared by splitting the free grained gums; for building, either brick or native wood is used; while for roofing, corrugated iron is now chiefly preferred. This material is much cheaper than slate, considerable cheaper than shingles, and with the convenience with which it is placed, as well as transported, it is rapidly becoming the roofing material of the country. Even in the cities, many fine buildings are roofed with it, and nearly all the porches, verandas, barns, and outhouses are covered with this not unattractive and very suitable material.

There are practically no buildings going up in the cities of Australia anywhere, nor can there be in the near future. I am informed that in Melbourne there are 20,000 empty houses waiting tenants, and surely of the 83,000 dwellings in Sydney there are a few thousand beyond the necessities of the population. Most of the timber used in the mines is from the native forests, though in former days there was considerable Oregon pine used at Newcastle and Broken Hill. The demand at Broken Hill still continues, as I am informed that several vessels during the last few months arrived at South Australia with lumber from the Pacific coast for these mines.

There is no shipbuilding proper in New South Wales, but for the numerous small craft extensively constructed here, the long, strong, and clear timbers from the Oregon pine are most available and considerably used.

There is very little railroad building going on in this colony, and the timbers used are wholly native. There are probably nowhere timbers so durable or suitable for railroad ties, called here sleepers, or for bridge building, as the local native woods. Some of these timbers have many merits; not only are they very strong and very durable, but some varieties, notably iron bark, are almost fireproof.

For car-building purposes the native woods are well adapted. They finish very smoothly, are strong, and take a fine polish.

TRADE OUTLOOK.

As to how we may increase our lumber trade with Australia, I would first remark that there is little hope of increase until a revival of business.

However, I would suggest that it is in our power to secure a greater portion of the existing trade by beating our competitors in quality. While laying no claim to special knowledge on that point, I have carefully examined the lumber from many of our States and from many countries, and I feel quite confident that the Oregon pine (fir), carefully selected from the forests of western Washington or Oregon and sawed with judgment, will furnish a class of lumber which for clearness,

strength, and soundness is very far superior to any of the soft woods that come from Norway or New Zealand. The dealers and consumers here are good judges, and they want the best there is. With them it is cold business.

Then it seems to me that owing to the hardness and great weight of native woods here, our light, tasteless, and odorless spruce should be used exclusively for fruit-packing purposes, whether the package be a crate, a box, or a barrel. Considering lightness, neatness in color, tastelessness, and all the qualities necessary for packages for eatables, I believe the Pacific slope spruce much superior to any other material available for this market.

There is another suggestion I venture to make regarding a possible increased lumber trade in these colonies, and that is a reciprocal exchange of timbers or remission of duties. Our merchantable timbers are soft; theirs are hard. Ours are suitable for cottages, buildings, floorings, scaffoldings, joists, shipbuilding, etc., while theirs are superior for pavements, furniture, fine implements, etc. Sydney is better paved than any American city, save Washington. It is almost entirely paved with wooden blocks. A careful test of many years has been made. Experiments with different woods, as well as various metal and stone cubes, on the chief streets where there is the heaviest and most continued traffic, have been made, and the wood pavement has proved its great superiority.

It seems that turpentine, black butt, mahogany, and tallowwood have proved the better woods for the purpose. As compared with blue-stone cubes, the stone wears at the rate of 1 inch per year, and the better woods but one-twelfth of an inch. Besides being much more durable, they are less noisy, less destructive to vehicles, easier on horses, and in every way more desirable.

Add to this the fact that they are also cheaper, and that a wood pavement makes a drive superior to asphalt, and why should our people not enjoy this luxury? There may be climatic objections in many American cities, but there certainly are not any on the Pacific coast.

Considering population, the people of New South Wales are the greatest commercial people on earth. They believe in trade. They are anxious for a market for every merchantable product of the country. I believe if our people would open up a market for the hard woods of this country, if they would experiment with and finally use this New South Wales paving material, which I believe to be the best in the world in suitable climates, it would result in reciprocal trade and give our lumber dealers the market of this country.

There are two other suggestions that I desire to make relative to our trade with Australasia, a little outside of the circular instructions, but I think not so foreign to the subject as to subject me to criticism, and one is that our people should be not only very careful in the shipment of all articles for this market, but they should be sure that every article

is as good as represented and fully equal to the sample. A few unscrupulous or careless dealers have aroused a feeling of suspicion against our countrymen, so there is a little prejudice to overcome and our competitors are not slow in using the advantage given them. The merchants of England claim these markets as their right, and the national pride, if not prejudice, of these people predisposes them to favor their own countrymen, while France and Germany are striving, by subsidies and low prices, to increase their trade here, so that Americans are compelled to rely upon the merits of their wares and the enterprise of their agencies.

But what is more needed to extend our trade than anything else, other things being equal, is that our strong exporting firms, merchants, manufacturers, etc., should establish agencies in this country, with active, wide-awake, honest, enterprising, Americans in charge, to handle and display American goods and keep American ideas, wares, enterprise, and inventions constantly before the people.

In transportation we have the advantage over any other country, and our people should have, and will have when they deserve it, 40 per cent of the trade of Australasia, instead of 3 per cent as now.

GEO. W. BELL,

Consul.

SYDNEY, March 27, 1894.

SOUTH AUSTRALIA.

NATIVE WOODS.

Apart from other characteristics, the trees of South Australia are not as tall as those which are found on the northeast and west of this territory. The eucalypti do not exceed 100 feet to 120 feet in height. Among the twenty species of eucalypti which appear in the extra-tropical parts of south Australia there are only a few varieties which are held in special estimation.

They are commonly called red, white, and blue gum, stringy bark, and peppermint. These are used for various purposes, such as building, rough carpentry, wheelwright's work, and for fuel. The red gum (*Eucalyptus rostrata*) is very hard and solid, weighing about 62 pounds to the cubic foot, and when properly seasoned is impervious to the white ant; it is, however, most difficult to work up. The stringy bark (*E. obliqua*) has its habitat principally on the hills. It sheds its bark in long fibrous strings, which loosen and droop down as they become detached by the newly formed bark underneath. This process gives to the trunks of the trees a ragged, untidy appearance. The stringy

Bark grows so straight that the young trees are much used for scaffold poles, spars, etc., in which length, strength, toughness, and straightness are required. The wood of these trees makes excellent palings and shingles because it splits evenly and readily. It is also used largely for fencing rails and sometimes posts, but it soon perishes in the ground, and the white ant destroys it rapidly. As fuel it is not good. When dry it burns away fiercely; when green or damp it can with difficulty be got to burn at all, unless mixed with other more combustible wood. The blue gum (*E. dumosa*) is valuable for all sorts of work, and for fuel as well. The white gum (*E. viminalis*) is generally inferior in durability; it does not resist white ants, and when green or damp it is worse even than stringy bark as fuel. The peppermint (*E. odorata*) is a hard wood, useful for ordinary purposes, and very serviceable as fuel.

The red gum is widely distributed. It is never far distant from water, and its stately branches are almost invariably noticeable on the margin of creeks and water courses in the north.

All eucalypti, indeed most Australian trees, are remarkable for their naked appearance. The boughs in their gray outlines are always distinctly traceable through the foliage, which is smooth and shiny. From a distance the leaves scarcely seem to depend from the boughs. The trees for their size throw little shade, and the thick branches of some varieties often drop off suddenly on a perfectly calm, hot day, to the certain destruction of anything that may happen to be beneath. These trees give a special monotony to the scenery of South Australia.

The wood of the acacia is useful only for cabinet work, but the blackwood (*Acacia melanoxylon*) has better qualities for purposes of that nature. This tree, however, is common in the southeast, while it is rare near Adelaide. It is more common still on the eastern side of the border. Another species of acacia, the wattle of the colonists (*A. pycnantha*), at one time neglected, but now largely cultivated, is valuable for the gum which freely exudes from it. Its bark, bought in England as mimosa bark, is one of the best of the kinds used for tanning purposes. There are other kinds of acacia which are also valuable for tanning, but none are equal to the wattle.

The she-oak (*Casurina stricta*) is remarkable in appearance. Its fronds do not shape as ordinary leaves; they appear as continuations of the branches. It never reaches any great height, and is almost funereal in aspect. The wind rushing or sighing through these trees causes a mournful whistling or wailing sound, according to its force. All kinds of cattle eat the fronds greedily. The wood is tough and splits tolerably even. It makes excellent spokes for wheels, handles for hammers, etc., and is used also for turning work and in cabinet-making. As fuel it is excellent.

The tea trees (*Melaleuca* and *Leptospermum*) mostly inhabit low damp situations, and are to some extent valuable because of the durable nature of their wood when used underground, or perhaps in water. It

is close-grained and hard, and when dry heavy. It is generally sound at the heart. The wood of the native pines of this province (*Frenela robusta* and *F. rhomboidea*) are not durable, and are little used except for fences or for fuel. The *Banksia marginata*, or honeysuckle, is occasionally used for cabinet work, and the *Myoporum acuminatum*, although soft, is tough, and forms excellent knees for boats.

The late Dr. Schomburgk, director of the botanic garden, Adelaide, from whose writings the foregoing account has been mainly derived, remarks upon the absence of native edible fruits, "of which there are none deserving the name except a few berry-bearing shrubs belonging to the orders *Epacridæ* and *Santalacææ*, *Astroloma* and *Leucopogon*, the principal species of which, the native currant of the colonists (*Astroloma humifusum*) and the so-called native peach, with a succulent pericarp and a hard, bony, much pitted endocarp (the quondong), are all South Australia can boast of. There is also a deficiency in eatable root-bearing plants." There is one of which little notice has been taken—the muntree. It grows along the ground, and produces a berry of a size somewhat smaller than that of the ordinary Barcelona nut. The smell and taste are strong, and like that of an apple. It may be found on the banks of the Inman and Hindmarsh rivers, on Yorkes Peninsula, and in many other spots where sandy soil and moisture exist. The shoot withers rapidly when separated from the parent plant.

One peculiarity of the eucalypti has not been noticed, and that is their extraordinary vitality. As long as a strip of bark is continuous from the ground up to the branches, the tree lives. Thus trees many feet in diameter at and above the bole, hollowed out by the ravages of insects or by fire, leaving cavities large enough to shelter several persons, live and put forth their leaves as if nothing had ever occurred to interfere with their growth. Dr. Schomburgk, however, points out that when eucalypti trees die they begin to die from the topmost branches. The leaves fall off, and nothing but dry twigs and sticks are left until the end comes. The gum trees of all kinds are subject not only to the attacks of insects which destroy them, but to the visitation of a vegetable parasite called the mistletoe. It attaches itself to the branches and hangs down in long pendulous vitiform bunches, and is not unlike the mistletoe of the oak. When it attacks a tree the death of that tree is only a question of time.

The sandalwood tree, which grows in abundance on Yorkes Peninsula, is short, but produces solid and strong wood. ~~When freshly cut down it has an agreeable odor, which lasts for a long time, but becoming more and more faint as the trunk dries.~~ It is useful for many purposes. It also does duty as firewood. Those who have read in Eastern tales about chambers being scented with burning sandalwood, and imagine that a perfume of a pleasant nature must be the result, would be completely disillusioned by the combustion of our sandalwood. This wood is known even in China as a deadly foe to mosquitoes. This is not sur-

prising, for anyone who has had the good or ill fortune to camp by a sandalwood fire in the bush will give his clear testimony to the fact that the smell of the burning wood is bad. It is not too much to say that it verges on the insufferable. Some specimens of the timber have been sent to England, and some were forwarded to the Paris Exhibition in 1871, but they have not attracted attention.

After noticing the general features of the flora of South Australia the author above referred to says:

Notwithstanding the little apparent difference in the formation of its surface, soil, and climate, the flora of South Australia introduces itself to the observer in its geographical extension by special and peculiar forms of plants in regions. These are the forest land, scrub land, grass land, and the intra-tropical regions.

The region of the forest land in South Australia occupies most of the mountain districts, and extends along the base of the mountain chains. The forests have not the fullness and lofty growth of those of other countries. The underwood is of medium size, more open and less difficult to penetrate. The forests are of less extent, and are intercepted by tracts of grass land. The eucalypti are the most predominant forest trees; the stringy bark often forms whole forests in some mountain districts, but is seldom seen on the plains.

The trees of the forests do not appear crowded, and seldom do the branches of a tree reach those of a neighboring tree. The declivities of the mountain ranges are for the most part similarly timbered, the trees sometimes extending to the summits; often only one-half or two-thirds of the remaining part being grassed, with here and there copses of low shrubs, and stunted and much ramified trees. Often the whole declivities are grassed without even a shrub or tree.

Another feature of the table-land in the hill districts is the appearance of occasional hills clothed only with a covering of tussocky grasses, amongst fragments of ironstone quartz and sand, destitute of all other vegetation, except small scattered trees of the *Casuarina stricta*, *C. glauca*, and the peppermint (*Eucalyptus odorata*).

The level table-land is generally covered with grass, but is deficient in shrubs. Here scattered are to be seen the most stately and majestic specimens of eucalyptus. Such table-lands have a park-like appearance, and the trees standing seemingly at measured distances, single or in small clumps, as if planted by a landscape gardener. The soil of these table-lands is, generally speaking, very rich and produces abundant crops of cereals. The underwood of the forests is most represented by the following genera: *Correa*, *Alyxia*, *Prostranthera*, *Grevillea*, *Hakea*, *Isopogon*, *Exocarpus*, *Acacia*, *Banksia*, *Cassia*, *Calythrix*, *Pomaderris*, *Leucopogon*, *Leptospermum*, *Daviesia*, *Dillwynia*, *Eutaxia*, *Platylobium*, *Pultenaea*, and shrubby *eucalyptus*.

"The beautiful genus *Epacris*, which is only represented in South Australia by one species (*E. impressa*), frequently covers whole mountain ridges and declivities: when in bloom the different shades of color of its flowers produce an effect not readily described.

Among the most useful of the public institutions in South Australia is the woods and forest department. It was established about fourteen years ago, and was then called the forest board. Its organization, however, was not very successful, and its functions were transferred to an officer as head of a department under ministerial control. The change has proved to be beneficial, and forest planting in South Australia has been attended with the greatest success.

For forest purposes the colony has been divided into 4 districts, the northern containing 9 forests, covering 121,979 acres, the central dis-

trict includes 8 forests, containing 21,647 acres, the western district has 10 forests, spread over 16,269 acres, and the southern district has 10 forests, with an area of 55,474 acres; altogether 215,369 acres. The total area under operations in 1892 was 10,185 acres.

Young trees raised in the plantations are freely distributed, 372,152 having been spread over the colony in this way in 1890-'91, and 322,383 in 1891-'92. At the present time there are close upon a million of young trees available for distribution. The actual expenditure of the department for the fourteen years ending in June, 1892, was £104,097, and the revenue derived from the sale of trees, posts, railway sleepers, etc., amounted to £103,340. The small excess of £799 as expenditure over revenue during a term of sixteen years does not give an indication of the value of the forests' reserves and their contents. Many thousands of posts for fencing purposes and sleepers for railway construction have been supplied from the forest reserves, and the supply of available timber now growing in the forests is equal, without further planting, to all the requirements which are likely to arise in the colony for many years to come.

Many varieties of timber trees are grown in the plantations which are suitable for purposes other than those of railway and fencing works. Trees suitable for the manufacture of furniture and cabinet work of different kinds are grown there in perfection. Among them may be mentioned the American ash (*Fraxinus Americana*), which has succeeded beyond all expectation. Some of the trees were felled at the early age of ten years, and the timber after drying, was made up into various articles, such as buggy poles, tables, chairs, Indian clubs, mallets for driving tent pegs, constables' staves, trapeze bars, wickets, buggy naves, etc. Many of the samples were used for turnery, and in every case the results were most satisfactory. The wood is reported "to be unrivaled in toughness and adaptability for turning, as it stands working to the very outside and to the smallest dimensions of any timber without exhibiting any tendency to break off."

In 1891 "a consignment of the best American-grown ash was received by Messrs. Marshall & Co., and their foreman, after comparing the Australian-grown timber with it, unhesitatingly gave it as his opinion that the Australian article was equal to the American or anything received from any part of the world of the same kind of timber, being a better color and tougher, and working up equal to satin wood, while it never deadens from being polished, and always keeps its color."

The *Pinus insignis* has also been grown with the most satisfactory results. It possesses the special merit of requiring less dressing with the plane than any other deal, as a surface can be obtained much more readily thereon. It takes a good polish, is very tough, and does not split on exposure, which is a great advantage in connection with manufacturing purposes.

Mr. Gill, the conservator of forests, regards these results "as encour-

aging in the highest degree, giving, as they do, most satisfactory proof of the progress already attained in the acclimatization of some valuable exotic timbers, and also as indicating what may be expected in later years when these timbers shall have been properly matured."

KINDS OF LUMBER USED.

The principal lumbers used are Oregon pine, which is preferred because it is most suitable in every respect for building and for its cheapness, and Jarrah and Tasmanian blue gum hard woods.

IMPORTS OF LUMBER.

The amount of lumber imported is obtained from the latest statistical returns (1892), and the names of the countries are as follows:

Kinds and whence imported.	Quantities.	Value.	Kinds and whence imported.	Quantities.	Value
Boards:			Sleepers:		
United Kingdom, super. ft.	209,500	\$8,425	Victoria.....number..	992	\$250
Victoria.....super. ft.	183,539	6,635	Western Australia..do..	89,422	79,785
New South Wales..do..	17,500	1,270		90,414	80,035
Western Australia..do..	36,800	1,170	Total.....do..	170,828	160,070
New Zealand.....do..	178,500	4,050			
Tasmania.....do..	89,500	1,445	Shingles:		
India.....do..	800	25	Tasmania.....do..	16,600	100
Canada.....do..	151,800	4,870			
Russia.....do..	362,400	13,000	Spars and quartering:		
Norway and Sweden..do..	4,704,200	138,370	United Kingdom..loads..	125	1,760
Germany.....do..	100,000	4,000	Victoria.....do..	217	3,225
United States.....do..	3,785	35,825	New South Wales..do..	34	830
Total.....do..	6,028,124	219,085	Western Australia..do..	4,554	75,175
			New Zealand.....do..	111	1,225
Deals and battens:			Tasmania.....do..	5,213	51,135
United Kingdom..loads*.	254	5,640	India.....do..	9	125
Victoria.....do..	71	1,100	Singapore.....do..	34	590
New South Wales..do..	2	30	Canada.....do..	443	2,505
Western Australia..do..	1	15	Norway and Sweden..do..	9	135
Queensland.....do..	15	525	United States.....do..	6,337	92,130
Tasmania.....do..	1,046	8,420	Total.....do..	17,086	228,835
New Zealand.....do..	1,124	16,500			
India.....do..	31	460	Spokes, in the rough:		
Singapore.....do..	25	250	Victoria.....number..	50	5
Canada.....do..	8,062	81,690	New South Wales..do..	48,193	2,380
Russia.....do..	990	16,500	Tasmania.....do..	1,300	30
Norway and Sweden..do..	10,822	155,935	Total.....do..	49,543	2,415
Germany.....do..	8	115			
United States.....do..	3,785	40,660	Staves, in the rough:		
Total.....do..	26,236	333,840	United Kingdom.....do..	4,818	3,520
			Victoria.....do..	21,228	550
Laths:			New South Wales.....do..	3,000	90
New South Wales, number.	2,000	15	Tasmania.....do..	89,388	1,970
Tasmania.....number..	152,400	375	Germany.....do..	21,161	580
Canada.....do..	408,000	645	United States.....do..	40,806	6,175
United States.....do..	222,750	675	Total.....do..	180,401	12,885
Total.....do..	785,150	1,710			
			All other lumber:		
Palings:			United Kingdom..loads..		10
Victoria.....number..	25,200	760	Victoria.....do..	333	6,215
Western Australia..do..	102,800	2,830	New South Wales..do..	838	21,420
Tasmania.....do..	659,140	17,850	Western Australia..do..	2,345	59,870
Canada.....do..	56,400	685	Queensland.....do..	377	9,395
United States.....do..	30,300	410	New Zealand.....do..	1,015	14,685
Total.....do..	873,840	22,535	Tasmania.....do..	1,475	21,870
			Singapore.....do..	4	40
			Canada.....do..	3,542	21,235
			Germany.....do..	1	40
			United States.....do..	30,429	458,830
			Total.....do..	41,359	613,410

*The load equals 50 cubic feet of square timber; 40 cubic feet of unhewn timber; and 600 superficial feet of 1-inch planks.

†No qualification of quantities given.

Imports of lumber—Continued.

Kinds and whence imported.	Quantities.	Value.	Kinds and whence imported.	Quantities.	Value.
Woodenware:			Woodenware—Continued.		
United Kingdom		\$9,260	Hongkong		\$35
Victoria		10,190	Norway and Sweden		15
New South Wales		2,810	Belgium		130
Western Australia		995	France		145
Queensland		151	Germany		1,295
New Zealand		1,301	United States		45,300
Tasmania		40			
India		45	Total		71,717
Ceylon		5	Grand total		1,666,692

DUTY AND PRICES.

The duty on lumber entering South Australia, following the order in the foregoing import table, is as follows: Boards, 36 cents per 100 superficial feet; deals and battens, 60 cents per load; laths, 24 cents per 1,000; palings, 12 cents per 100; sleepers, free; shingles, 12 cents per 1,000; spars and quarterings, 60 cents per load; spokes, in the rough, free; staves, in the rough, free; all other, free; wooden ware, 25 per cent.

The wholesale prices of lumber at Fort Adelaide are as follows:

Shelving	per 100 superficial feet..	\$6.36
Oregon pine	per cubic foot..	.24
Jarrab	per 100 superficial feet..	3.65
Stringybark	do....	2.43
Cedar logs	do....	4.86
Huon pine logs	do....	4.86
Kauri pine	do....	6.26
Red pine	do....	6.36
Flooring boards:		
1½ inch	do....	2.19
¾ inch	do....	1.70
¾ inch	do....	1.58
¾ inch	do....	1.21
Deals, 9" by 3"	per foot..	.17

. CLIMATE. -

The climate of South Australia, although occasionally somewhat trying in the summer months, is unquestionably one of the most agreeable and healthful in the world. It has been compared with that of the south of Spain. Its skies have been justly described as surpassing those of Italy. The purity and dryness of its atmosphere are quite equal to similar climatic characteristics which prevail in the best portions of Algeria. ~~In fertility of soil it is not inferior to that of the most favored districts in these sunny lands. The enormous territory which is embraced within the limits of South Australia proper, having an area of about 380,070 square miles, or 243,244,800 acres, naturally includes considerable climatic differences. The climate on the hills and on the highlands is temperate and genial, and not marked by an excess of cold during the winter months. On the plains the summer weather is~~

most felt, for, as the winter and spring rains cease, they become dry and hot and unfavorable to the growth of many plants which belong to cooler countries. On the hills almost all the fruits and vegetables which grow in Europe and in the more temperate regions of Asia, as well as many that are indigenous to Africa and America, thrive splendidly. The productiveness of the colony depends to a very great extent upon the rainfall, and that varies remarkably, not only in different localities but in different seasons. Thus the rainfall at Mount Lofty, 8 miles south from Adelaide, in 1889, amounted to 67.010 inches; in 1859 it was 32 inches. At Parallana, in the far north, in 1888, it was 1.710 inches, and in 1885 it had been 20.405. In some parts of the north, such as Lake Frome, only 5 inches were recorded. The average rainfall in the whole of the agricultural districts of south Australia, from Melrose to Cape Northumberland, in 1890 was 26.646 inches, the mean from previous years being 21.476. The highest total was in 1889, when 30.874 inches were recorded at the Adelaide observatory; and the lowest in 1876, when no more than 13.434 inches were noted at the same place. It is somewhat strange that the heaviest rainfall known in the colony should not have been followed by something approaching to a corresponding increase in the harvest; yet, in 1863, with a rainfall in Adelaide of less than 24 inches, the yield was nearly double that which was secured in 1889, when the rainfall was nearly 31 inches. This noticeable discrepancy, however, may be ascribed to causes not altogether dependent on the actual quantity of rain that descends. The time of the year at which the rains set in, their duration, the temperature which immediately follows upon the rains when they continue late and come down upon the verge of summer, and the early visitation of north winds, which in the summer are hot, have their share in influencing the quantity of the yield. Other circumstances, not meteorological, have also their effect on the harvest.

The observations of the rainfall which occurs in the various parts of the colony are recorded at 368 stations. At several of these the daily range of the barometer and thermometer are noted, with all the particulars, which accurately describe the meteorological conditions of the place. These are forwarded to the central station, where, under the direction of C. Todd, esq., postmaster-general and government astronomer, they are collated, tabulated, and prepared for publication. By means of the telegraph, which extends from Adelaide to the Indian Ocean on the north, to Melbourne and Sydney on the east, almost to the extreme north of Queensland on the northeast, and from Adelaide to Northwest Cape in western Australia, the Government astronomer is able to publish weather forecasts, which being generally reliable are alike interesting and useful to the public, and are eagerly looked for in the columns of the daily journals.

From this it will be seen that this colony (as well as the other colonies whose meteorological records are collected and made up on the

same system) is in a position to furnish daily accounts of meteorological phenomena which occur over most of the continent that can be regarded as authentic. The record of the rainfall dates back as far as 1839, when it was commenced by the late Sir George Kingston, formerly speaker of the house of assembly, and who kept it up till within a very short period of his death, in 1880. The record at the observatory was commenced in 1856, since when its operations have been gradually extended all over the province, so that its meteorological arrangements are as complete as it has been possible to make them.

The postmaster-general and astronomer to the colony published in 1876 a paper which gave interesting particulars of the climatic peculiarities of south Australia, as well as a detailed account of the observatory and its appliances. Since the publication of that memoir the climate of the colony has not sensibly changed. There have been irregularities in the seasons, or rather irregularities in the special phenomena of those seasons, especially of late years, which should, if duly weighed by those who are interested in the culture of the land, whether as fruit-growers, vigneron, market gardeners, or producers of grain, largely influence the horticulture and agriculture of the future.

In the memoir on the climate which has been referred to Mr. Todd says:

The observations at the observatory satisfactorily represent the climate of the plains for some distance north and south of Adelaide, but in the Mount Lofty ranges, close by, the citizens can in an hour or two find a much lower temperature, and twenty minutes by railway will carry them to the invigorating breezes of the gulf; and, except when kept back by strong easterly and northerly winds, the sea breeze sets in soon after 10 a. m. and sweeps across the plains, tempering the heat during what would otherwise be the hottest hours of the day.

The hottest months in the year are December, January, and February, when the temperature on the plains frequently exceeds 100 in the shade. November and March are also hot; but the nights, especially in the former month, are cooler, and the heat is seldom of long duration, rarely reaching 100 in the shade, and, coming in suddenly with a strong hot wind, is followed quickly by a change to cool, or even cold, weather. A few hot days occasionally occur in October; but, even in the hottest months, especially in December, the weather is often broken by cloudy cold intervals, with strong southwest winds, veering gradually to south and southeast. This state of things will continue for several days, during which the wind from the southeast will usually freshen towards sunset, a bank of cloud forming over the Mount Lofty ranges, with cold nights, the temperature falling rapidly after sunset. The duration of these southeastern winds appears to depend upon the weather on the eastern coast, and the presence of the bank of cloud on the ranges, and the persistence and force of the wind, often indicate gales and rain on the coasts of New South Wales and Queensland, although the weather here may be fine and clear overhead. As the easterly wind moderates it gradually hauls to the north, and alternate land (easterly) and sea (southwesterly) breezes set in with fine weather, getting warmer and warmer, till another spell of extreme heat is experienced. The heat is sometimes followed by rain, especially in the earlier part of the season, setting in with the surface and light wind at northeast, but the upper current northwest. This is usually presaged by aggregations of cirro-cumuli, which close up and form a bank

with a hard sharply-defined outline, gradually spreading over the sky, the clouds at the same time increasing in density as they change their character, with scud forming beneath. The rain increases as the wind veers to the northwest, and often extends over a large area to the north and is sometimes accompanied with heavy thunder and lightning, usually terminating with a gale from the southwest. The same thing occurs in the winter; but the wind at that season hangs longer about the west, often backing to the northwest, with heavy rain and wind. These are usually our heaviest and most widely diffused falls, the rains from the southwest seldom extending far inland.

The summer may be regarded as extending from October to March. After that month the temperature falls rapidly, very rarely reaching 90 in the shade. * * * The weather during April and a great part of May is simply perfection, and the same applies to most of the winter and till the end of October. Although corresponding to the autumn or early winter of Europe it is virtually spring, when vegetation, refreshed by the first rains after the drought of summer, bursts into fresh life, and the whole surface of the land is clad with verdure. Heavy rains frequently fall in May, and the greatest downfalls usually occur in that month. The coldest months are June, July, and August, but the mean temperature is not very low. The cold is sometimes much felt in the winter months, because of the contrast it emphasizes between the summer weather and the genial temperature which prevails in other portions of the year. Frosts occasionally occur on the plains, and frequently on the hills. Ice, perhaps a quarter of an inch thick, is occasionally noticeable in shallow surface pools, but this rarely if ever survives an hour's sunshine. Snow has sometimes fallen at Mount Loftly and on other high sunmits in the ranges, and at other times a few miles north of Kooringa, which is 1,560 feet above the level of the sea. Snow is, however, quite phenomenal in south Australia, and the drift does not remain on the ground for more than an hour or two, whenever it does occur.

In writing on the subject of the course of the seasons and weather forecasts, late Sir George Kingston gave the following as the results of his observations extending over forty years:

The heaviest rain throughout the year may be expected with a wind at about northeast, the rain commencing to fall gently and the wind light, both gradually increasing as the latter veers around to the north, and thence to the northwest, when the violence of both wind and rain has much increased. After this the wind may be expected to draw around to the west, when the rain generally ceases, or at least rarely falls except in heavy squalls and showers, and the weather clears up. The time occupied by a continuous fall of rain, as thus described, rarely amounts to twelve hours. The wind will, however, frequently hang at about west, with a few points of variation to the south and north for some days, during which period rain occurs in showers if to the south, and more steadily in proportion to the northing of the wind. The heaviest rains, assuming a tropical character, may be expected after a hot northeast wind drawing round to the northwest, at which point an inch of rain and upwards has often fallen within the hour, accompanied with heavy thunder and lightning; or, as in October, 1854, the rain is represented by tremendous hailstorms, the hail assuming the form of flat pieces of ice.

As regards the use of the barometer in forming a judgment on the weather to be expected, I have to observe that the barometer invariably begins to fall with a northeast wind, continuing to fall as the wind increases in violence and draws round by the north, northwest, and westerly, at or about which point it reaches its lowest figure. The barometer generally begins to rise with the least southing in the wind. Now, although a low barometer thus agrees with the heaviest fall of rain, it is impossible to draw certain conclusions from it as to probability of rain or otherwise unless, indeed, when the wind is violent, as then, even with every appearance of heavy cloudy weather, rain rarely occurs. Calm, murky weather, accompanied by

a low state of the barometer, is the most favorable indication of rain. I have frequently seen the barometer at its lowest point (as observed by me), 29.3, blowing hard, and accompanied by cloudy weather, when no rain has fallen; on the other hand, I have known some of the steadiest and most copious rains to occur with the barometer at 30.2 and falling, the wind light or nearly calm.

I may add that generally during fine weather a land and sea-breeze alternates during the twenty-four hours. After sunset the wind generally blows from about southeast to east, dying away about daylight, and a light southwest wind springs up about 9 a. m., but, failing to do so, the land wind towards morning draws round from east to northeast by north to northwest, and west towards the afternoon; and should it hang to the north of east, with a falling barometer, it is a certain precursor of a hot wind.

It may not be uninteresting to add here that, when Sydney was visited by tremendous storms and floods from the 19th to the end of July, 1860, the weather here was then usually fine for the time of the year; the barometer was, during all that time, above 30 inches and very steady, oscillating slightly each day, its whole range not exceeding 0.2; the wind was very light, from southeast to northeast and northwest. I did not record a drop of rain all that time, an unprecedented event at that period of the year.

The winds, according to Mr. Todd, during the summer tend generally on all sides to the heated interior, which may be roughly described as a vast plain broken by a few ranges, none of which are of any great size or magnitude; on the south coast, the wind being southeast and south varied by occasional southwest gales following a hot wind from the northeast and north, whilst further north and round the north coast, the northwest monsoon for some months before and after the summer solstice presses down south with varying force, often making itself felt as far south as the Macdonnell ranges on the southern edge of the tropics in the center of the continent. North of the Macdonnell ranges the winds during the summer season are variable, southeast and northwest winds alternating with calms, and heavy electrical storms with rain prevail with increasing intensity northwards to the coast. South of the Macdonnell ranges southeast winds prevail during the greater part of the year, but in the summer they are often influenced by the northwest tropical current, and then veering to the northeast and north will sweep over south Australia as a hot wind, the birthplace of which seems to be, speaking approximately, somewhere about latitude 26. Our experience of the climate of the interior of Australia is as yet but limited, but the stations on the great overland telegraph now furnish accurate daily reports of the weather, direction of upper currents, and rainfall. These reports show that the prevailing wind, except during the middle of summer, is southeast.

In connection with Sir George Kingston's "weather forecasts," the following observations from Mr. Todd may be read with interest:

I have long been of opinion that the southerly dip of the monsoon largely influences the climate of South Australia proper, as well as that of Victoria. In seasons of drought, or when the summer in the interior is dry, the northwest monsoon rains thin off and rarely reach the center in occasional storms. But when the monsoon is strong and blows well home, the tropical rains and thunder will stretch right across the continent well into the northern country of South Australia to within about 200 or 300 miles of Adelaide, and occasionally these tropical rains will reach the south coast. A wet season in the interior will probably coincide with a hot summer in South Australia and Victoria, whilst a cool summer in the latter, where strong polar currents keep the temperature down and the southeast winds are powerful, will denote or coincide with a dry summer in the interior and a weak northwest monsoon. The winter rains of the south, it may be remarked, thin off at about 30° or 40° north of Adelaide, rarely penetrating to latitude 28, and summer rains are

not to be depended upon far south of the tropics. Between those parallels is a wide belt of 5° or 6° having an uncertain rainfall, subject to droughts, very seldom getting rain during the winter, but mostly depending on summer thunderstorms, the frequency and intensity of which, it is not improbable, may be found closely to coincide with the magnetic cycle of eleven and a quarter years, which is believed to determine the frequency of aurora magnetic storms and solar spots. This, of course, is conjectural, and is not to be accepted till proved by increased experience.

From the foregoing a tolerably accurate conception of the South Australian climate may be formed. There is one thing, however, which deserves some notice here. In many published articles in newspapers and magazines the hot winds of Australia, and especially of South Australia, have been mentioned in highly colored terms. They have been described as terrific, and have been dwelt upon as though the climate of this province was somewhat worse than tropical. It is quite true that hot winds are not pleasant; in fact, they are enervating, and whilst they last are exceedingly exhausting to persons who are in a feeble state of body; but they seldom last for more than a few days, and when the westerly breezes which succeed them set in, sometimes suddenly, all the bodily *malaise* which they may have caused quickly disappears. They have, however, a most beneficial effect in purifying the atmosphere. They destroy noxious germs which may float about in the air, and otherwise do an immense amount of good. At the same time their effect upon tender plants is severe, and all kinds of flowers and shrubs which are not hardy or tolerably well protected from them droop and shrink, and are slow to recover their strength until a much cooler temperature prevails.

Even with the drawback of occasional hot winds, there is seldom such severe heat in the summer as to prevent persons from following their ordinary occupations out of doors. There are only forty-five days in the year, taking the average of thirty-four years, 1857 to 1890, on which the temperature rises above 90. The Government astronomer has noted this fact, and states that this climate, "beautiful as it really is, affording as it does the great number of pleasant days on which outdoor pursuits can be carried on with buoyancy of spirits is a wee bit dry, a fact which vegetation on the plains in our summer season sufficiently attests. The clearness or transparency of the atmosphere is something wonderful and owing to its dryness, except on hot-wind days, it is seldom oppressive unless one is lazy. Cricket matches are played with the usual enthusiasm before crowds of spectators with the thermometer ranging between 90 and 100 in the shade, and the writer has ridden 50 miles in a day with the thermometer as high as 110 without much inconvenience or distress; the secret of which is that these high temperatures are always accompanied by such an extreme dryness of the air that perspiration affords instantaneous relief. When a fierce hot wind is blowing and the thermometer stands at perhaps something over 100, the wet bulb thermometer stands at 65, and it is this which

enables persons to bear the heat of summer and carry on their usual pursuits with less inconvenience and discomfort than is felt in damp climates, where the temperature may be 15° or 20° lower but nearly saturated with aqueous vapors, as at Port Darwin, where during the rainy season of the northwest monsoon the thermometer may stand at only 88, whilst the wet bulb indicates 86. Such an atmosphere, we need hardly say, is far more enervating than the hot and dry air of the Adelaide plains."

One peculiarity of the Australian climate is the occurrence of drought. Droughts are either general, that is to say, they affect the whole of the Australian continent in a greater or less degree, or they are partial, that is confined within limited areas. South Australia is probably more subject to visitations of this kind than other portions of Australia, owing, to some extent, to the absence of high mountain ranges in the interior. The causes of these droughts have been very carefully investigated by the official heads of the meteorological departments in the principal colonies, and as far as their observations have been extended they are generally in accord upon the subject.

GENERAL BUILDING.

General building is at a standstill at present. Those houses now being erected consist of a small class of residences of about four rooms, built of stone, of which the majority of buildings are constructed.

The timber used in railroad building is grown locally, and is obtained from South Australian Government forests, and consists chiefly of the eucalyptus class.

EXTENSIONS OF LUMBER TRADE.

I can not offer any suggestion concerning the methods to increase the lumber trade with this province, now already considerable.

CHAS. A. MURPHY,
Consular Agent.

ADELAIDE, March 8, 1894.

TASMANIA.

NATIVE WOODS.

The principal native woods of Tasmania are the various species of gum (*Eucalypti*), the myrtle (*Fagus cunninghami*), the Huon or Macquarie Harbor pine (*Bacrydium franklinii*), and the blackwood or lightwood (*Acacia melanoxydon*).

The gum timber is all hard and dense. As a rule it shrinks considerably, and warps and twists, and for interior work is used for floors

alone. For this purpose it is exceedingly durable. It is used universally for frame houses, joists and beams, piles, and decking for bridges, wharfs, etc. The Huon pine is a very valuable and durable wood, but it is comparatively scarce and dear; for this cause it does not supplant the imported timber. The lightwood is used mainly for furniture and interior fittings.

KINDS OF LUMBER USED.

The lumber used, and which is preferred, is principally Swedish, imported in the form of "deals," and tongued and grooved linings. American redwood and shelving and Oregon pine are used to a limited extent, and the Kauri pine of New Zealand more largely.

IMPORTS OF LUMBER.

In 1891 the total imports of timber were 5,335,000 superficial feet, but with the prevailing depression and consequent suspension of building, it is expected that the quantity will be materially diminished this year.

As much of the timber comes through the colonies of Victoria and New South Wales, the original source of supply can not be given with accuracy. Probably about 850,000 superficial feet came from the United States, 3,235,000 superficial feet from Sweden, and 1,250,000 superficial feet from New Zealand, in 1891.

DUTY AND PRICES.

There is no duty on timber 3 inches thick or over; under that pays 60 cents and \$1.21 per 100 superficial feet.

At the present time the values of all kinds of timber are abnormally low: American red wood, \$4.01; Oregon, \$2.67, duty paid (60 cents) in both cases; American shelving, \$6.08 duty paid (\$1.21); all per 100 superficial feet. The native gum flooring boards, tongued and grooved, are sold at \$3.04 per 100 superficial feet.

CLIMATE.

The climate of the island varies, owing to its mountainous character, but it is temperate and equable throughout, the mean yearly average range probably not exceeding 68° F.

GENERAL BUILDING.

General building has been fairly active until now. It does not seem probable that much recovery will take place for some time.

Railroad building is also suspended and is not likely to be resumed, except in a small way; in any case, very limited quantities of imported timber would be used in construction.

EXTENSION OF LUMBER TRADE.

With a population of only about 150,000, the trade in American timber is not capable of much extension, but the expected development of the mineral deposits may, before long, lead to expansion.

A. G. WEBSTER,

Consul.

HOBART, *February 20, 1894.*

VICTORIA.

BUSINESS DEPRESSION.

In the closing months of the year 1889 what is known as the "land boom," which for the preceding three or four years had caused a large increase in the consumption of building materials, collapsed, and as importations of lumber, based on the same rate of consumption being kept up, continued to come in for a long time, the market for timber has been suffering ever since from the accumulation so caused and the absence of any revival in the trade to clear it off.

Carpenters or timber workers are in a very unhappy condition at the present time. The managing partner of one of the largest timber houses here says that not more than one-third of the business done in their trade two years ago is being done now. In one large establishment which gave work to 150 men in 1892 only 48 hands are now employed, and these only at half time. To put it in another way, two years ago the firm was paying £500 (\$2,430) a week in wages, now they are paying under £100 (\$486). The figures are representative of the condition of the trade generally. Moreover, in the boom time a crowd of firms came into existence which are no longer in evidence—firms begotten of prosperity which adversity as readily suppressed. It is calculated that at least 30 shops of that character have been closed in the city.

Literally nothing is required in the trade in Melbourne, which embraces half the population of the colony, but there is a small demand for prepared timber from the country which keeps city mills slightly employed. But for the country business and the butter trade, which utilizes for boxes about 2,000,000 super feet of silver pine annually, the timber industry would be at a complete standstill.

The timber required for the butter trade has to be imported from New Zealand, there being, it is said, no sufficiently odorless wood in this colony.

NATIVE WOODS.

The native woods of the colony are all very hard and not well adapted for building, though admirable for other purposes.

The following trees of the *Eucalyptus* tribe are the most important:

The red gum tree (*Eucalyptus rostrata*), the timber of which is one of the most highly esteemed among the *Eucalypti* in all Australia, being heavy, hard, strong, and extremely durable, either above or under ground, or in water. For these reasons it is very much prized for fence posts, piles, and railway sleepers. For the latter purpose it will last at least a dozen years, and, if well selected, much longer. The late commissioner of railways reported that sleepers were found quite sound after being twenty-four years in use. It is not to be surpassed in endurance for wood bricks in street paving and for tramways.

The blue gum tree (*Eucalyptus globulus*) furnishes a first-class wood. Shipbuilders can get keels of the timber 120 feet long; besides this, it is used for planking and many other parts of the ship. Experiments on the strength of various woods, instituted by the Government botanist, proved the wood of the blue gum tree, in an average of eleven tests, to be about equal to the best English oak, American white oak, and American ash. Blue gum wood is very extensively used by carpenters for all kinds of outdoor work, joists and studs for wooden houses; also for fence rails, telegraph poles, railway sleepers (lasting nine years or more), for shafts and spokes of drays and a variety of other purposes.

The iron bark tree (*Eucalyptus lenoxylon*) furnishes a most valuable timber, showing great strength and hardness, and much prized for its durability. It is largely employed by wagon builders for wheels and poles, and is also used by turners for rough work. It proved to be the strongest of all the woods hitherto subjected to test by the Government botanist, bearing nearly twice the strain of American oak and ash, and excelling hickory by about 18 per cent. It is much recommended for railway sleepers and extensively used in underground mining work. It is likewise very extensively employed for the handles of axes and other implements by Victorian manufacturers.

Besides the *Eucalypti*, the evergreen beech (*fagus Cunninghami*) and blackwood (*acacia melanoxylon*) are the most important timber trees, the latter especially being found admirably adapted for the manufacture of railway carriages; also for furniture, which is almost indistinguishable from that made of the best walnut.

IMPORTS OF LUMBER.

In consequence of the native woods being hard, and therefore not easily worked, it is necessary to import almost all the timber required for building purposes.

The following table gives the importations of lumber for the past eight years, and whence imported:

Year.	Baltic. United Kingdom, and Canada.			Colonial.		
	Flooring, lining, and weather-boards.	Red deals.	Spruce and Baltic white deals.	Kauri pine.	Red and white pine.	Cedar.
	<i>Super. feet.</i>	<i>Super. feet.</i>	<i>Super. feet.</i>	<i>Super. feet.</i>	<i>Super. feet.</i>	<i>Super. feet.</i>
1886.....	54,135,023	24,026,436	3,755,499	8,951,118	90,000	3,849,577
1887.....	26,405,838	17,259,012	762,795	7,888,104	531,300	2,921,141
1888.....	51,052,077	22,063,392	2,589,675	14,493,927	2,866,581	2,159,183
1889.....	49,960,908	25,118,280	3,006,263	15,551,906	529,900	1,401,232
1890.....	56,743,271	28,072,319	2,354,118	12,914,750	715,727	1,255,753
1891.....	36,367,258	10,039,821	3,268,213	13,845,346	1,723,684	969,936
1892.....	23,477,951	1,197,471	2,289,093	5,531,846	1,707,891	866,681
1893.....	13,368,894	746,914	1,482,008	3,838,585	2,523,199	47,620

Year.	United States and Canada (west coast).					
	Flooring, lining, and weather-boards.	Red deals.	Spruce and white deals.	Kauri pine.*	Red and white pine.	Cedar.
	<i>Super. feet.</i>	<i>Super. feet.</i>	<i>Super. feet.</i>	<i>Super. feet.</i>	<i>Super. feet.</i>	<i>Super. feet.</i>
1886.....	31,341,179	955,779	(†)	2,481,066	4,068,327	401,150
1887.....	24,515,087	1,273,590	(†)	2,098,444	2,841,650	450,030
1888.....	55,487,604	1,431,957	(†)	3,973,558	4,861,419	468,450
1889.....	35,220,629	1,376,109	(†)	4,939,101	5,332,382	380,814
1890.....	35,426,131	1,767,797	2,508,933	4,173,208	3,337,429	189,973
1891.....	20,337,733	816,857	2,979,910	1,478,266	3,726,476	244,594
1892.....	13,603,638	1,286,356	1,680,570	813,162	2,119,738	134,064
1893.....	1,170,760	270,948	238,057	.....	42,370	17,245

* As in the original.

† Included in clear pine.

Laths, pickets, and doors from the United States, Canada, and the Baltic.

Year.	Laths.	Pickets.	Doors.
	<i>Bundles.</i>	<i>Bundles.</i>	<i>Number.</i>
1886.....	167,342	158,397	16,457
1887.....	122,202	116,255	6,627
1888.....	132,175	202,400	9,774
1889.....	97,622	194,832	1,563
1890.....	86,503	156,325	1,183
1891.....	51,721	53,800	303
1892.....	17,344	51,432	1,760
1893.....	1,740	3,000	501

DUTY.

The duties on timber in this colony may be summarized as follows:

Oregon (Puget Sound) fir:

12 by 6 or equivalent.....per 100 superficial feet.. \$0.36

7 by 2½ or equivalent up to 12 by 6.....do.... .60

Shelving and tongue-and-groove sheathing (American), flooring, lining, and weatherboards (Baltic).....per 100 superficial feet.. .36

Timber cut into shapes for making boxes.....per cubic foot.. .12

Timber not otherwise enumerated, of sizes under 7 by 2½.....per 100 superficial feet.. .97

Laths.....per M.. 1.21

Pickets:

Undressed.....do.... .12

Dressed.....per 100.. .12

Shingles.....per M.. .12

Doors, skirtings, and moldings are charged heavy duties, intended to be prohibitory.

The following descriptions are free of duty: Clear pine, sugar pine, California redwood, undressed, 1 inch thick and over; ash, oak, hickory, walnut, whitewood, and sycamore, undressed; Baltic red and white deals, 7 by 2½ and upwards; Australian and New Zealand pines of all sizes, undressed.

The duty on Oregon fir, 7 by 2½ and over, was first imposed on July 29, 1892, and at the same time the duty already existing on sizes under 7 by 2½ was doubled, both at the instance of the local hard-wood dealers, who contended that Oregon unduly interfered with their product.

PRICES.

The market price of American timber is slightly better at present than during the past two years, and is as follows: Oregon, new stock, \$25.54 to \$26.76; old stock, \$21.89 to \$23.11; redwood, \$35.37 to \$36.49; sugar pine, \$53.53 to \$58.39.

I am informed that the stock of Oregon held by trade hands is very large, and owing to the small demand for timber of all descriptions the reducing process proceeds very slowly.

PUBLIC BUILDING.

Railroad building is practically at a standstill for want of available funds, and, except in station buildings, no imported timber is used in railway construction.

Shipbuilding is not an industry in this colony; a few vessels have been built of iron, and barges, etc., for the harbor trust, but exclusively of local woods.

EXTENSION OF LUMBER TRADE.

The merits of Oregon timber, for which a decided preference is shown, are fully recognized by the people here, and the demand for it is commensurate with the building being carried on.

The result of my interviews with the timber merchants of this city, as to what manner the lumber exports from the United States to this colony may be increased, is, therefore, that the return of brighter times, which is confidently expected in the near future, must be awaited before the demand for American lumber can be increased.

DANIEL W. MARATTA,
Consul-General.

MELBOURNE, *March 1, 1894.*

EUROPE

AUSTRIA-HUNGARY.

NATIVE VS. AMERICAN WOODS.

From the very best information I can gather, this country is not quite yet ready to use American lumber to any great extent. The American lumber exporters should realize that here in Europe their only competitors, especially for German, French, and Italian consumption, are the Austro-Hungarian lumber dealers.

Up to the present time, nearly all of the staves used for wine in France and Italy, passed through the hands of the Austrian merchants, and the same can be said of those used in the breweries of Germany. The forests remaining in Austria proper, are nearly all used up, and it is from the Hungarian portion of this empire that most of the lumber is exported. The Hungarian forests are mainly owned by the Government, and city and village communes.

About three years ago, the Government, which controls the cutting of forests in Hungary, curtailed the number of trees to be felled, so that at their annual sales less lumber was offered than was required for home and export wants. Some well informed parties maintain that this was a ruinous policy to pursue, as it not only fictitiously advanced the value of lumber in Austria, but it compelled lumber dealers to look elsewhere for a good portion of their wants, thus hastening the introduction of foreign lumber, which might have been delayed some ten or twenty years.

At the same time when this happened, many breweries were being started in Germany and the demand for staves in Italy and France was unusually great. Since then the prices of lumber have fallen. This is undoubtedly due to a lesser demand, and to the introduction of American lumber.

"To sum up the matter," as a very well informed lumber dealer explained: "We do not fear the United States for consumption for the next thirty or forty years; we have also enough oak in this empire to carry on a large export trade for ten years to come. At the end of this time our supply will be so reduced that it will be impossible for us to compete with the United States in foreign markets. The only way

that the Austrian lumber dealers can maintain their foreign business, will be to acquire forests in the United States."

That there is much truth in the above statement is plainly to be seen, inasmuch as from my personal knowledge I know of three different firms who have sent their representatives to the United States to acquaint themselves with the condition of the lumber trade and to buy up forests. Although not yet exporting much therefrom, they are preparing to do so in the future. The only kinds of wood, that Americans could sell in this empire, are lumber for shipbuilding purposes in the seaport towns of Trieste, Pola, and Finme, and certain kinds which could be used for veneering purposes, such as very fine grades of oak, walnut, etc. It must be borne in mind that fine furniture manufactured here, is not made of solid oak, or other hard wood as in the United States, but mostly of soft wood veneered. Pine thoroughly seasoned and then veneered is used even for the best furniture.

The time is very near when the entire European market will be compelled to look to the United States for most of its lumber. Let us in the meanwhile husband our resources; let the destructive extravagance in the extinction and waste of our forests, cease; our wealth herein is enormous, but we have so much that we do not know how to value it.

Staves for the wine merchant must be split; the sides must not, while the tops can be cut. Again, for beer purposes, both sides and tops must be split, it being claimed that staves cut and not split make leaky barrels. As wine barrels are usually laid on their sides, the pressure on their tops is not apt to be great, and for this reason wine barrel tops can be cut instead of split.

It is most important that American manufacturers should realize the necessity of sending properly made goods to foreign markets. Some years back the first shipment of staves into Switzerland made leaky barrels, and to-day Swiss business men are afraid to purchase American staves, unless accompanied with a guarantee. And this additional very important fact must be kept in view, that this trade, which is bound to come, should be held by American merchants, and not permitted to pass into the control of foreign corporations.

PRICES.

Great quantities of oak railroad ties are made here, the shapes mostly furnished are 2.50 meters long, the top 15 to 17 centimeters, (meter = 39.37 inches; centimeter $\frac{1}{10}$ of a meter), the bottom 24 to 25 centimeters in width, and 15 centimeters high.

Prices vary according to locality; the Hungarian Staatsbahn paid for the last 30,000, recently ordered, 56 cents each, and for some smaller ones, 2.20 meters long, 36 cents. Soft lumber ties are about 30 per cent cheaper.

The prices of the lumber here in the Vienna market range about as follows:

Pine timbers for roof, 10 by 13 to 16 by 18 centimeters broad, and 10 meters long, 13 to 14 florins* per cubic meter; 18 by 20 to 21 by 24 centimeters broad, and 10 meters long, 14 to 16 florins per cubic meter; 18 by 24 centimeters broad, and 6 to 8 meters long, 13 to 15 florins per cubic meter. Pine boards, according to quality, 15 to 22 florins; oak boards not assorted, 38 to 45 florins.

Staves for hectoliter (barrels which hold 100 liters), one-fourth hectoliter, 1 to 1.60 florins; one-half hectoliter, 1.50 to 2.30 florins; 1 hectoliter, 2.40 to 3.30 florins.

Staves for transportation: Barrels containing from 3 to 13 hectoliters, 2 to 2.10 florins per hectoliter. Staves for storage: Barrels containing from 20 to 80 hectoliters, 2.20 to 3.40 florins.

EXPORTS OF LUMBER.

The following table shows the export of lumber from Austria-Hungary for the first eleven months of 1893:

Timber:	Metric centners.†
Raw, hard.....	595, 622
Raw, soft.....	8, 059, 049
Hewn, hard.....	322, 709
Hewn, soft.....	788, 737
Staves.....	1, 401, 299
Railroad ties.....	481, 690
Sawn wood, hard.....	810, 930
Sawn wood, soft.....	5, 780, 531
Timber, not European.....	105
Total.....	18, 240, 672

Most of the above went to France, Germany, Spain, Italy, Switzerland, Greece, Egypt, Holland, Belgium, Bulgaria, and the British Dominions on the Mediterranean Sea.

IMPORTS OF LUMBER.

The following table shows the imports of lumber into Austria-Hungary for the first eleven months of 1893:

Timber:	Metric centners.
Raw, hard.....	92, 559
Raw, soft.....	151, 714
Hewn, hard.....	27, 330
Hewn, soft.....	35, 029
Staves (from the United States direct).....	39, 727
Railroad ties (nearly all from Russia).....	142, 640
Sawn wood, hard (from the United States direct).....	49, 635
Sawn wood, soft (from the United States direct).....	135, 298
Timber (from the United States direct).....	61, 358
All other.....	33, 470
Total imports.....	769, 160

* The consul-general estimates the florin at 39 to 40 cents.

† Metric centner = 220.46 pounds.

The lumber described "all other" was nearly all transshipments from German ports, but it should be noted that the timber was not grown in Europe.

MAX JUDD,
Consul-General.

VIENNA, *February 21, 1894.*

BOHEMIA.

NATIVE WOODS.

Bohemia is well supplied with forests of heavy trees, the Boehmerwald region being specially noted for same. The woods in Bohemia can be divided into three classes: (1) Pine forests; (2) leaved, or hard forests; (3) mixed forests. The prevailing species of the coniferous trees are the spruce, fir, the pine, and the larch. Among these the spruce predominates.

Of the deciduous trees the prevailing species are beech, oak, and birch, the beech predominating. Among the mixed species are found poplar, alder, elm, basswood, chestnut, aspen, and maple.

In Bohemia between 1,300 to 1,400 sawmills are operated, which are driven either by steam or water power, the majority by water power. Only few of the larger steam mills can be favorably compared with American mills; the rest are small affairs, many of them having one circular or one upright saw. The whole annual production of the Bohemian forest is estimated at 6,250,000 cubic meters, consumed as follows:

Cubic meters. *

Lumber.....	835,000
Building purposes	900,000
Fiber (for packing, upholstering, and under carpets).....	600,000
Railroad ties.....	220,000
Staves.....	60,000
Shingles	22,000
Parquetts (French flooring)	20,000
Wooden wire (such as matches, etc.).....	20,000
Building canal boats	16,000
Wooden shoes	6,000
Telegraph poles.....	4,000
Resonant purposes (such as violins, etc.).....	1,200
Lead pencils	600

The balance is made up of firewood.

The leading kinds of lumber used are spruce and pine. The preference is given to spruce. It is used for all kinds of building purposes, furniture, etc. The pine is used for railroad ties. The principal lumber market is the city of Prague, which is situated nearly in the center of the country, on the river Moldau, and convenient to all the lumber

* Cubic meter=35.3 cubic feet.

districts. Most of the timber comes from Boehmerwald, which is in southwestern Bohemia, and the remainder from the mountain regions in the northeast and northwest of Bohemia. It is brought down on the rivers Elbe and Moldau and their tributaries. Bohemia exports considerable timber to Dresden, Leipsic, and Magdeburg, and certain quantities of logs are yearly sent to Hamburg for shipbuilding. A good deal of the lumber goes to Austria proper, and to southern Germany, mainly to Nuremberg and Mayence. The transmission of timber and logs to Germany is done on the river Elbe, except that to south Germany, which is forwarded by railway.

Some lumber is brought into Bohemia from Galicia, which import is explained as follows: A number of Bohemian capitalists own large tracts of timber land, with sawmills thereon, in Galicia, and the demand for lumber there is very limited, consequently it is forwarded to Bohemia, where it finds a ready market and better prices.

Then again, the Galician Government sells yearly at public auction certain lots of standing timber with the proviso that it must be manufactured into lumber in that country. Such lots of timber are generally purchased by Bohemian dealers at low prices. Besides, the labor in Galicia is cheaper than in Bohemia, and they thus acquire cheap lumber, which they bring to their Bohemian lumber yards.

IMPORTS OF LUMBER.

There is no lumber imported from the United States into Bohemia direct. Some American black walnut is used here, mainly for veneering, but this is imported from Hamburg. I have visited a lumber firm in this city that advertises American lumber for sale and inquired what kind and how much they handle, and whether they import it directly, etc. The information I have received was that recently they bought a carload of American black walnut and pitch pine from Hamburg for a trial, but were unable to say how it was going to sell. It is said that in Prague some years ago American walnut sold cheaper than the Tyrolean walnut, but now it is the other way. The trouble with the American lumber seems to be that its price is too high when it reaches here in consequence of its indirect importation. It is bought from middlemen either at Hamburg or Bremen, and in that way it passes probably through three or four hands before it reaches the consumer. It is admitted by the lumber dealers here that the market for American lumber in Bohemia alone is not large enough to warrant American lumber dealers profitable shipments. Still, I am of the opinion that a good market could be opened for American lumber, such as black walnut, elm, and others that are not produced here, by establishing an agency at Prague that would extend to the Empire of Austria-Hungary. The demand would be sufficient to warrant large ship-

ments, for the importation would be made direct, by which the costs of the present system of importation would be greatly lessened. I am satisfied that the trade would result in mutual benefit.

On account of the small amount of lumber imported into Bohemia, there are no separate statistics kept.

DUTY AND PRICES.

All kinds of lumber, timber, or logs are admitted into the Empire of Austria-Hungary free of import duty.

PRICES.

Statement showing the prices of spruce and pine boards per 100 pieces, 5.7 meters (6.233 yards) long, and of the thickness and width specified.

Edged boards.				Boards not edged.			
Thick- ness.	*Width.	Value.		Thick- ness.	Width.	Value.	
		First quality.	Second quality.			First quality.	Second quality.
<i>mm.</i>	<i>mm.</i>			<i>mm.</i>	<i>mm.</i>		
13	132	\$8. 12	\$6. 48	13	132	\$6. 90	\$5. 68
13	158	10. 15	8. 12	13	158	8. 93	6. 48
13	184	12. 18	9. 74	13	184	10. 55	7. 71
20	132	11. 39	9. 94	20	132	10. 15	8. 53
20	158	13. 80	11. 37	20	158	12. 99	10. 55
20	184	16. 24	13. 80	20	184	15. 02	12. 99
26	132	15. 02	12. 18	26	132	12. 19	10. 94
26	158	18. 67	15. 02	26	158	16. 24	12. 99
26	184	22. 33	18. 27	26	184	20. 30	16. 24
40	263	54. 81	44. 66	26	211	23. 55	19. 49
40	290	62. 93	50. 75	26	316	40. 60	34. 51
40	316	71. 05	54. 81	26	342	44. 66	36. 54
53	263	74. 30	58. 87				
53	290	85. 26	66. 99				
53	316	93. 38	73. 08				
80	290	120. 17	99. 47				
80	316	133. 98	109. 62				
105	316	176. 61	144. 13				
105	342	192. 85	156. 31				

* 26 millimeters = 1 inch.

The price of boards 6 meters (6.56 yards) long or over is 5 per cent higher.

The following is the price of planks of different kinds, which are sold per cubic meter:

Alder.....	\$10. 15 to \$15. 43
Basswood.....	12. 18 16. 24
Beech	8. 12 12. 18
White beech.....	16. 24 20. 30
Maple	16. 24 20. 30
Oak	16. 24 24. 36

CLIMATE.

The climate of Bohemia is humid and salubrious. The range of the thermometer is given as follows (Fahrenheit):

January	28	August	69
February	32	September	62
March	38	October	50
April	50	November	41
May	60	December	30
June	69	Average	50
July	69		

The longest day in the year is sixteen hours ten minutes. The prevailing winds are northeast and east in April, north in May, northwest in June, west and southwest in July and August, east in September, southeast in November, and southwest in December. The east and northwest winds bring clouds and dampness.

GENERAL BUILDING.

The dwellings, business and farm houses are generally built of brick or stone, and so are all other constructions. Very little wood building is carried on in Bohemia.

There are no ships built in this district. Canal-boats are built at Budweis and Worlik on the river Moldau. They are very lightly constructed, serving simply for one trip down the stream. On their arrival in Hamburg or Bremen, they are sold either in whole or broken up, part sold for lumber and the rest for firewood. I was informed that there is very little freight carried back from the seaports to Bohemia, and that it would not pay to tow the empty canal-boats back against the stream, consequently they are disposed of as stated. About 30 of such canal-boats are constructed yearly at the above-named places.

The construction of new lines of railroad in Bohemia is now very limited, only short branch lines being built here and there. Most of the ties made here are used for replacements, and the yearly consumption averages about 10,000,000. The ties are of pine or oak. They are 8 feet long, 5 inches thick, and 7 inches wide.

The price of pine ties is from 40 to 49 cents, and of oak 81 cents each. The pine ties before they are used are impregnated with a preparation of sulphuric acid in such way that the fluid is forced into every pore of the tie, which is afterwards covered with tar. So prepared, they last on the track from six to seven years.

JOHN KAREL,
Consul.

PRAGUE, January 31, 1894.

AMERICAN AND HUNGARIAN OAK.

[From the Peeter Lloyd, of Prague, of February 1, 1894.—Translated by Consul Karel.]

When, about eight years ago, the news leaked out that a French association had decided to purchase a large tract of oak forests in the Caucasus, some fear was felt by our home dealers in oak wood. That enormous tracts of oak forest exist in the Caucasus is well known, and the apprehension that the competition of this oak would become dangerous to our home production was, therefore, justifiable. Fortunately that fear passed away without having caused any other injury than that the French association, with which an Austrian firm was also interested, met with a decided failure.

The French association sent at that time several experts for careful examination of the Caucasian oak forests. The investigation lasted six months, and the report of the delegates, headed by a member of a Vienna firm, was made in enthusiastic language, describing the magnificent virgin oak stock, and praising the excellent quality and grand dimensions of the oak trunks. The calculation made promised vast returns, but the real outcome has been disappointing to those directly interested.

The fear of Russian competition is therefore disposed of—for the present, at least; but a more serious danger is threatened from American competition.

The Americans are a practical people. Through premature alarm of the market a depression of prices in oak wood would have been anticipated, and they desire to profit by the high prices in Europe as much and as long as possible.

To begin with, official instructions* were issued from Washington to all American consuls in Europe, directing them to collect facts regarding the production and consumption of lumber, particularly regarding oak timber, its peculiarity, and availability. These instructions were carried out with astonishing thoroughness. Every one of the more important firms dealing in oak wood in Austria and Hungary received judicious interrogatories from the American consuls. In case of insufficient answers, the consuls applied for further information.

The Americans went to work very quietly, guided by the information obtained regarding the availability of the oak, and what followed? Reports came from London, Antwerp, Rouen, Hamburg, showing that American oak was brought and offered on the market of those places for fuel and sawing purposes. Our home firms dealing in oak wood did not notice this competition, because at the beginning it was of such small proportions. But gradually its importance began to be perceptible, and at the present day there are considerable importations of American oak, especially the so-called "German coopers' wood."

Staves for a vessel containing from 80 to 100 eimers (the eimer = 14.94 wine gallons) have been sold in Germany at 95.2 cents per eimer. The demand for barrels for breweries was so great that our exporters, in consequence of the continual increase in the value of oak forests, and in view of the fact that, for such large-sized staves, the oak trees were becoming scarcer, were obliged to raise their prices. Suddenly there appeared stave wood of American origin on the German market. The shipments from the United States to Hamburg increased and the prices went down little by little.

* * * * *

A shipment of several hundred thousand so-called "French staves," of American origin, arrived in Bordeaux. Thus American competition is trying to get hold of this important line of business also.

In the English lumber market the shipments of American oak timber for sawing are steadily increasing. In London, Liverpool, and Glasgow this oak timber, which

*The answers to these instructions were published by the Department of State, under the title "The Stave Trade in Foreign Countries."

is of extraordinary quality and dimensions, makes successful competition with the Slavonian wainscoting. Last year it happened for the first time that more than 30 per cent of the Slavonian wainscoting production remained unsold, and had to be stored by the owners, partly on the docks in England and partly in Fiume, and consequently the effects are already felt. In former years the wainscoting was immediately sold at the annual forest sales after the timber had been bought from the Government. It formed the quasi basis of the forest acquisitions, because in that way the money was returned the quickest, but this year there are still several lots unsold.

It is a well-known fact that our country has, during the last thirty years, experienced many surprises from the United States. Not only have American grain, bacon, and lard caused depression in our agricultural products, but in wood we have also felt the burden of American competition, which is known, so far, only to initiated circles. It is true that this competition concerned one kind of wood, which does not play such a part in the world's market as does our oak wood; we mean the great depression, about fifteen years ago, in the value of larchwood. From 1870 to 1880 the Carinthian larchwood was very much sought after and sold as dear as oak. For certain purposes preference was given to it. The Imperial and Royal arsenal at Pola used great quantities of it annually until the American pitch pine made its appearance and crowded out the larchwood not only from the world's market but from our home market. The arsenal in Pola has been importing for many years American pitch pine, which is superior in quality to larch, besides being sold in huge dimensions and, according to our ideas, at extremely low prices.

The price of larchwood fell continually and the high-priced forest tracts covered with larch timber in Carinthia have been so reduced in value that they are almost down to the level of the common pine-wood forests, while formerly they were valued five times as high, and even more. And now the United States appear very quietly in the world's markets as a competitor with our oak, which causes great uneasiness among our home oak trade.

In consequence of the low price of land in the United States; the fact that no labor has been expended in forest production; the highly developed means of communication, waterways extending everywhere, which are the cheapest means of transportation, etc., the Americans have great advantages over us; therefore, it is evident that this competition has all the qualifications of becoming a great danger to our oak-wood export. This danger, on account of the extraordinary spirit of enterprise of the American people and their unlimited individual liberty, is no longer theoretical but actually confronts us. One Vienna firm dealing in German coopers' wood followed carefully the transaction of the American oak-wood workers. A member of that firm made a trip to the United States for that purpose. This firm took along 400 skillful and able wood-cutters from our maritime country. These men worked, at what was there considered the very low price of \$1.50 to \$2 per day, the most choice and magnificent oak timber in great quantities.

Another Vienna firm sent a representative to the United States for the purpose of studying the oak-wood exploitation there. A Buda-Pesth house is on the point of doing the same. All this is certainly praiseworthy, but what can a single individual accomplish in such case? It would be advisable for all the Austrian and Hungarian firms dealing in oak wood to unite and send an expedition on a large scale to the United States for the purpose of studying minutely this dangerous competition. The money question for such expedition would hardly be any obstacle, and assistance from the Government, in the form of recommendations to the Austro-Hungarian consuls in the United States, would not be wanting. If only a part of what is said of this American competition is true the same fate which met our larch wood will meet our oak. It is therefore for the interest of all the dealers in oak, and especially for the Hungarian State, because it owns the largest oak forests, to fit out such an expedition without delay.

FRANCE.

BORDEAUX.

NATIVE WOODS.

The woods found in this vicinity are oak, chestnut, walnut, poplar, maple, apple, acacia, fir, cedar, buttonwood, and horse chestnut. There are no trees growing in this latitude of uncommon variety. Towards the south in the vicinity of Nice and along the littoral of the Mediterranean, are to be found certain tropical plants. These, however, serve for decorative purposes only.

KINDS OF LUMBER USED.

In the vicinity of Bordeaux are found numerous pine forests. Great quantities of hewn pine are used as supports in coal mines in France, but very little is used for building purposes. The greater part of the lumber employed for building in this, and possibly in other parts of France, is imported from Germany, Austria, Italy, Belgium, Switzerland, Roumania, and Turkey. Norway and Sweden are also important shippers of wood to France.

IMPORTS.

In 1857 the importation of lumber into France for building purposes was valued at 9,161,000 francs; in 1876, at 41,978 francs; and in 1889, at 34,824,426 francs. Great quantities of fir come from Norway and Sweden, and oak from Russia. The city of Bordeaux is a very important port in the lumber trade.

DUTY AND PRICES.

The duty charged on lumber per 210.46 pounds, is as follows: Unsawn, 19.3 cents; sawn, thirty one-hundredths inch thick or over, 29.9 cents; sawn, less than thirty one-hundredths inch, 33.8 cents.

The price of lumber varies to such an extent in this market that it would be almost impossible to give any definite figures. It is certain, however, that the United States with its boundless forests and facilities for working up and transporting lumber would find an excellent market in this city. As a proof at hand, I may state that there are already one or two houses selling no inconsiderable quantities of lumber from the United States; and for the benefit of exporters, I attach hereto a list of lumber merchants who I think would be prepared to handle the American article.

CLIMATE AND GENERAL BUILDING.

The climate in this part of France is mild, though the winters may be considered somewhat damp and rainy, and sometimes even rigorous; the summers, on the contrary, are dry and hot.

Although the Garonne River, on which Bordeaux is situated, is a fine, broad tidal waterway, the shipbuilding industry does not flourish here. There does exist a shipbuilding establishment for the construction of war vessels, but these, it is needless to say, are built of steel.

My advice to American exporters would be to send a representative to this city to study the condition of the market and offer the home material at somewhat more advantageous prices than those paid for European lumber used here. This could be readily done, and still leave a wide profit for the American shipper.

LUMBER DEALERS IN BORDEAUX.

Name.	Address.
Arlot fils	Rue des Lauriers, 1.
Beaumartin fils jenne	Chemin de Gessac, 2 et 4 (Talence).
Beaumartin (A)	Rue de Lamourous, 6.
Beaumartin (Gab')	Rue Tanesse, 35.
Blanchard	Rue Henri IV, 16.
Boulaine & C ^{ie}	Rue de Cursol, 22.
Bourbouley & fils frères	Rue Millière, 50, and rue Leberthon, 63.
Bourguès & Troye	Quai Deschamps, 52 (La Bastide).
Boutaux & fils	Rue Jean-Burguet, 13.
Bouyssou	Rue St. Bruno, 69.
Brodbeck	Quai Deschamps, 36 et 37 (La Bastide).
Cametron	Quai Deschamps, 24 (La Bastide).
Chabaud	Cours du Médoc, 30.
Corbineau	Cours de Cicé, 59.
Dalancourt	Boulevard de Candéran, 209.
Dalbusset & C ^{ie}	Cours d'Alsace-et-Lorraine, 17.
Dortet	Chemin d'Arès, 32 et 34.
Dandel & C ^{ie}	Rue du Jardin Public, 197 à 215.
Delpout fils	Avenue Thiers, 45 (La Bastide).
Ducos	Quai de Queyries, 73 et 74 (La Bastide).
Dupuy	Rue Lagrange, 79 et 99.
Durand & Videau	Cours d'Aquitaine, 87 et 89.
Durand	Rue du Petit-Goave, 22 et 24.
Eschenauer & C ^{ie}	Quai des Chartrons, 24.
Fleurbaey	Cité Mouneyra, 5 ^{bis} , 7 et 9.
Fillol	Allées de Chartres, 59.
Girardeau	Cours St. Louis, 59.
Labau	Quai Deschamps après la Passerelle.
Laché aîné	Rue Henri IV, 42.
Laché jeune	Rue Henri IV, 96-98.
Lacouture	Rue du Port, 3.
Lapeyre	Rue St. Bruno, 104, and rue Ligier, 9 et 11.
Lataste & C ^{ie}	Rue Delord, 60.
Leblond	Rue Poirier, 6.
Léglise & C ^{ie}	Rue Lafaurie-de-Monbadon, 69.
Marot	Avenue Thiers, 19 (La Bastide).
Marré & Delol	Rue Reignier, 2.
Monier & fils frères	Rue de Lachassaigne, 67 et 69.
Pelletier	Rue Vital-Carles, 18.
Pinchon	Quai de Queyries, 35.

Lumber dealers in Bordeaux—Continued.

Name.	Address.
Plantey	Quai de Queyries, 64-65.
Purpan	Rue Lagrange, 147.
Redon	Rue Lagrange, 99.
Reynaud fils & Dumont	Rue Calvé, 43-45.
Saint-Martin	Rue d'Ornano, 145.
Speu & Van Santen	Cours d'Albret, 103.
Talbart Duclos	Rue du Parlement St. Catherine, 18.
Tétard	Quai Deschamps, 32.
Vigier	Cours Journu-Auber, 44.
Viguié	Ruai de Queyries, 80 à 83 (La Bastide).
Westerhuus	Quai des Chartrons, 110.

J. M. WILEY,
Consul.

BORDEAUX, May 19, 1891.

MARSEILLES.

NATIVE WOODS.

France does not consume for house-building purposes proportionately the same amount of lumber as is used in the United States, but nevertheless her native woods by no means supply the quantity annually demanded. Dwelling houses of every degree, and indeed structures for whatever purpose intended, are in the main built of stone or, at least in the construction of walls, of broken stone and brick and cement, leaving an outer surface with an appearance as nearly as possible similar to sandstone. Even in the matter of flooring, particularly in southern France, while hard and soft wood are to some extent employed, the material generally liked and usually employed is the red hexagonal tile, common to southern countries. Joists, doors, casings, and, as above stated, some flooring are of wood.

The native woods are walnut, white oak, evergreen oak, eucalyptus, olivewood, some pine, and Corsican boxwood. The characteristic features of these are, of course, generally known, excepting as to the eucalyptus, a detailed report on which was recently sent from this consulate to the Department.

KINDS OF LUMBER USED.

The lumber usually employed in building operations is pine, most of which is imported from Russia and Sweden. For the making of furniture, an industry of great proportions at Marseilles, the woods preferred are American, Circassian, and French walnut, rosewood, mahogany, maple, whitewood, thuya, and boxwood.

IMPORTS.

The following tables have been prepared, the first giving the total lumber imports, in log and sawed, into Marseilles during the year 1893; the second the imports from the United States for the same period:

Imports from all countries.

Oak:	Tons.
Unsquared trunks	413
Squared, 80 millimeters thick and over—	
Railway sleepers.....	868
Other	1,021
80 to 35 millimeters thick	573
Under 35 millimeters thick	170
Total.....	3,045
Walnut:	
Unsquared trunks	157
Squared, 80 millimeters thick and over.....	1,188
80 to 35 millimeters thick	97
Under 35 millimeters thick	1
Total.....	1,443
Other woods:	
Unsquared trunks	411
Squared, 80 millimeters thick and over—	
Railway sleepers	40
Other	13,175
Total.....	13,626
Sawn lumber:	
80 to 35 millimeters thick and over—	
Russian	5,154
Swedish	4,645
Other	5,767
35 millimeters thick and under—	
Russian	2,917
Swedish.....	6,478
Other	5,719
Total.....	30,680
Clapboards:	
Oak—	
Austrian	7,309
American.....	163
Other	40
Other than oak—	
Austrian.....	394
American.....	2
Other.....	256
Total.....	8,164

Cabinet woods, blocks and logs, 2 decimeters thick and over:	Tons.
Box	423
Mahogany	248
Other	1,534
Other under 2 decimeters thick	1,302
Total	3,507
Odoriferous wood	162
Dyewoods, in logs:	
Brazilian	526
Mexican	1,491
Haitien	1,844
All other countries	5,061
Total	8,922
Paving blocks	212
Total imports at Marseilles	69,761

Imports from the United States.

Oak lumber for construction, squared or sawn, being 0.08 meter and more, in section	Tons.
Unsquared trunks	1
Squared wood:	35
0.035 meter and under, in section	1,587
0.035 to 0.08 meter, in section	840
0.08 meter or above, in section	5,209
Oak clapboarding	163.5
Logs, fagots, and firewood	72
Cork	0.1
Charcoal from wood	6
Cabinet wood 0.2 meter and more in thickness:	
Mahogany	4.9
Other wood	15
Total	7,933.5

DUTY.

The following table shows the import duties on lumbers of various sorts, as fixed by the latest French tariff.

Duties on foreign lumber under the present French tariff.

Description of lumber.	Minimum duty.	Maximum duty.
	<i>Cents.</i>	<i>Cents.</i>
Round trunks of at least 60 centimeters circumference at the foot	12.5	19
Squared lumber, 80 millimeters and above in thickness	19	20
Squared lumber:		
35 to 80 millimeters in thickness	24	34
35 millimeters and less in thickness	34	48
Clapboarding (used solely for casks and packing cases		
Poles, stags, etc., more than 1½ meters in length and not more than 60 centimeters in circumference (in this is included wood for cask hoops, etc	14	24
Exotic wood and boxwood	06	09
Wood for cabinetmaking:	Free.	Free.
In logs or sawn more than 2 decimeters thick	Free.	Free.
Boxwood, mahogany, and others	Free.	Free.
Boxwood, mahogany, if less than 2 decimeters thick	19	29
Odoriferous wood for dyeing	Free.	Free.

PRICES.

The appended table, prepared after obtaining prices from many dealers, gives, approximately, the selling prices of various sorts of lumber in the market of Marseilles:

Average prices of the chief kinds of lumber at Marseilles.

Walnut wood:	
French	per ton of 1,000 kilos..\$28.90 to \$38.60
Circassian.....	do.... 48.25 to 67.55
American	per foot.. .10
Maple.....	do..... .10
Rosewood	per pound.. .05
Mahogany	per ton of 1,000 kilos.. 57.90
Ebony:	
Macassar	do 48.25
Gaboon	do 52.11
Madagascar.....	do 67.55
Ceylon	do 86.85
Facaranda:	
Africa	do 34.74
Indies	do 73.34
White wood (America).....	per cubic meter.. 231.60
Boxwood:	
Persia	per ton of 1,000 kilos.. 77.20
Corsica	do 23.16
Oak, white:	
French	do 13.51
Hungarian	do 28.95
Oak, evergreen (French)	do 15.44
Olivewood	do 13.51
Eucalyptus.....	do 13.51
Thuya.....	do 675.50

CLIMATE.

The climate at all seasons is very nearly perfect. Winter, if indeed any season here can be properly so denominated, is sufficiently mild to remind one of early spring in the corresponding American latitude. July and August are very warm, but there is generally a cool wind from the sea, which renders life agreeable even at this, the most unpleasant season in Provence. As to what influence these conditions exercise over building operations it is difficult to estimate; but there are certainly pronounced effects, as in the use of tiles for flooring, the cool surface tempering the excessive summer heat.

TRADE OUTLOOK.

Notwithstanding apparent hindrances, whether of natural conditions, or unnatural, as in the case of tariff exactions, Southern France must have a vast quantity of foreign lumber, and that the United States do not furnish the bulk of it is solely due to the fault of her own merchants and dealers. Sailing vessels are constantly plying directly between this city and South Atlantic ports, in close proximity to the forests of Georgia and elsewhere on the Atlantic seaboard if by going

there business can be secured. Transportation rates by these vessels has been reduced to such figures that the cost of shipment of lumber from New York, or Savannah, or Pensacola to Marseilles and Toulon, unlike formerly when it was the chief item of expense, is now often less than that of transportation to the seaboard. The great difficulty in the way of enlarging the American lumber trade here, and this unfortunate impediment operates in the same manner with reference to American commodities in general, is not that the market is lacking or in any sense unwilling, but that there is a complete misunderstanding in the United States of French business methods and habits, an error which often goes so far as to seriously undertake to convert the French system to American, rather than take advantage of situations as they are found. It should not matter to an American that a Frenchman prefers to weigh his wheat by old-fashioned "steelyards" rather than by the carload in transit, moving at the rate of 20 miles an hour. And if he prefers to buy wheat to-day at a fixed price at so much per bushel to be delivered six months or a year hence, and is naturally skeptical of a commercial system wherein the values of commodities in six months or a year depend, not on supply and demand, but on the influence of "corners" and "deals," we have only ourselves to blame that the Russian merchant, appreciating the situation, has well-nigh driven our wheat from this market by taking advantage of this dissatisfaction with the ups and downs of Chicago and New York boards of trade. The Odessa dealer sends a French-speaking agent to Marseilles with instructions to sell wheat under the conditions prevailing in France, not by the trade rules in vogue in Russia. And in the same manner the Russian and Swedish lumber merchants come in person, learn the situation, and make contract with the people in their own language. The American, on the contrary, writes to his consul for the names of people dealing in particular lines of goods. The names are sent, and the American merchant writes a letter in English, inclosing a price list beginning: "We quote, etc., so much per ft. f. o. b.," as if expecting the Frenchman to learn English, and then master the intricacies of American trade abbreviations.

In a word, there is a large field here for American lumber exports. Pine, poplar, and oak are used in certain features of housebuilding referred to herein. The manufacture of furniture is an enormous industry, and American walnut is highly appreciated and wanted for the purpose. In a great manufacturing city like this, there are hundreds of uses for which all sorts of lumber are required, but which can not be enumerated here. At Toulon are situated the great shipbuilding concerns of the French Government, and the bulk of imported material should come from the United States.

To secure these markets American dealers should send here representatives who speak the language, with instructions to study the business system of the people, and to sell in accord with it rather than endeavor to bring the French to our way of thinking. Letters in Eng-

lish are of no avail. An earnest effort in the proper way can secure the lumber market of Southern France to the United States.

CLAUDE M. THOMAS,

MARSEILLES, May 19, 1894.

Consul.

GERMANY.

IMPORTS OF LUMBER.

The importation of lumber into Germany during 1892 is given as follows:

Lumber, raw or cut only with the ax or saw in cross sections, with or without bark, 54,174,000 marks; lumber, cut in longitudinal sections or otherwise cut than in cross section, 45,640,000 marks; lumber, cut or sawed, but not planed, in the longitudinal section (so-called "kantholz"), 40,200,000 marks; making the total value, 140,014,000 marks, or \$33,323,000.

Of the whole importation of lumber into Germany about 70,000,000 kilograms came from the United States.

DUTIES.*

The import duty on foreign lumber in Germany is as follows:

Description.	Non-treaty countries.	Most favored nations.
	Marks.	Marks.
Lumber, raw, cut with the ax or saw in cross sections only, with or without bark.....	1. 20	1. 20
Lumber, cut in the longitudinal section, or otherwise prepared or split, per cubic meter.....	2. 40	1. 80
Boxwood, cedar, ebony, mahogany, and cocoa..... per cubic meter..	. 60	. 60
Lumber, sawn in the longitudinal section, not planed boards, sawn beams, or blocks (so-called "kantholz")..... per cubic meter..	6. 00	4. 80
Cut cedar..... per 100 kilos..	. 25	. 25
Cut veneers..... do....	6. 00	5. 00

CHARLES H. BURKE,

HAMBURG, February 7, 1894.

Acting Consul.

* Consul-general Mason, of Frankfort on the Main, gives the following statement of duties per ton:

[Schedule A: Rates conceded to most favored nations, includes the United States. Schedule B: General rates of duty assessed on timber from nontreaty countries.]

Description.	Schedule.	
	A.	B.
	Per ton.	Per ton.
Class 1. Wood, raw, or rough, hewn with ax or saw, with or without bark, and oak staves.....	\$0. 50	\$0. 50
Class 2. Lumber and timber marked in the direction of the longitudinal axis, or prepared or cut otherwise than by rough hewing; barrel staves not included in class 1; unpeeled osiers and hoops, hubs, felloes, and spokes.....	. 75	1. 00
Class 3. Sawed lumber, unplaned boards, sawed cantlewood, and other articles sawn and hewn.....	2. 00	2. 28
Veneerings, unglued; unstained parts of floors.....	11. 90	14. 20

BAVARIA.

NATIVE WOODS.

The principal native woods of the Kingdom of Bavaria are pine, fir, oak, red and white beech. Stone pine, white pine, larch, alder, ash, maple, birch, nut, aspen, elm, and linden are also produced, but in less quantities.

KINDS OF LUMBER USED.

Pine, fir, oak, and beech are principally used for lumber, the first two being preferred.

IMPORTS OF LUMBER.

No statistics exist in reference to the importation of lumber into Bavaria, but of pine and fir only very little is imported.

American pitch pine, walnut, and teak are largely imported into Bavaria, especially for railroad wagons and furniture, and cedar in considerable quantities for lead pencils.

Oak staves and oak boards, the latter for parquetry, are mainly imported into Bavaria from Austria-Hungary, and nutwood from Italy and Switzerland.

PRICES.

The following prices are paid for lumber in Nuremberg, viz:

Pine, fir:

Unwrought.....	marks per cubic meter..	15 to 20
Sawn or cut.....	do.....	25 to 30

Oak:

Unwrought.....	do.....	40 to 70
Sawn or cut.....	do.....	80 to 110

Beech:

Unwrought.....	do.....	12 to 30
Sawn or cut.....	do.....	30 to 40

CLIMATE.

The climate in Bavaria is moderate. The average temperature is as follows: Spring, 46½° F.; summer, 64°; autumn, 47°; winter, 31°.

GENERAL BUILDING.

General building was carried on on a large scale until two years ago. Since that time it has decreased enormously. Shipbuilding in Bavaria is of no importance, but much lumber is used for railroad building. The largest railroad wagon factory of Bavaria, "Maschinenbau Actiengesellschaft Nürnberg," is in this city (Nuremberg), and I am informed that this company consumes about 5,000 to 6,000 cubic meters of lumber a year, one-half of which is native, the other half foreign, mostly American, bought through Hamburg, Amsterdam, and Antwerp houses.

I was told that until recently (cedar for lead pencils excepted) hardly any direct purchases from the United States were made by Bavarian firms, but always through Hamburg, Amsterdam, Rotterdam, or Antwerp houses. The imports of these American woods are composed of pitch pine, teak, walnut, etc. Cedar has always been imported direct.

EXTENSION OF LUMBER TRADE.

From my information I am led to believe that owing to the richness of the Bavarian woods a large import trade into this district of woods which grow here in abundance can hardly be expected, but in other kinds the American trade, already of importance, might be considerably extended, either by communicating directly with large manufacturing establishments, such as the wagon factory before mentioned, or by establishing branch houses or agencies at Hamburg and other sea ports, and through these pushing the trade.

Another large railroad wagon factory in Bavaria is the Maffei'sche Maschinenfabrik, in Munich.

SIGMUND DÜNKELSBÜHLER,
Vice and Deputy Consul.

NUREMBERG, *February 8, 1894.*

BREMEN.

NATIVE WOOD.

The native woods are common pine, German and Scotch fir, oak, beech, poplar, ash, and alder.

KINDS OF LUMBER USED.

For building purposes Scotch fir, Indian and pitch pine are used—pitch pine is preferred for flooring. Wagon makers and turners use poplar, oak, beech, and alder. Cabinetmakers use German pine for common furniture, but prefer Italian and American walnut and mahogany for fine furniture.

IMPORTS OF LUMBER.

The quantity of lumber imported is about 200,000 tons (50,000 standards) per annum. It is imported from Norway, Finland, Sweden, Russia, German Baltic Sea, and the United States. All the pitch pine used here, and some walnut, is American.

The importation of lumber in the year 1892 was as follows, in standards of 165 cubic feet:

Sweden.....	15,263
Finland.....	8,153
Russia.....	14,391
East Prussia.....	6,813
Norway.....	5,395
United States.....	4,705
Total.....	54,720

PRICES.

The following prices, duty included, are paid for lumber per standard or 4 tons:

Norwegian	\$29.04 to \$38.08
Russian	41.65 to 60.60
Finnish	36.89 to 55.93
Swedish	27.37 to 55.93
American pitch pine	59.50 to 64.26
German Baltic Sea whitewood	33.32 to 57.12
Scotch fir	35.70 to 83.30

GENERAL BUILDING.

During the years 1891 and 1892 875 houses were built in the city of Bremen, representing a value of 10,424,126 marks (\$2,480,942).

There are several railroads in contemplation from Bremerhaven and Cuxhaven, and some branches in Oldenburg. No railroads have been built in this district during the last five years.

The following table gives the total number of vessels built in this district during the years 1888 to 1892:

Year.	Steamers.		Other vessels.		Total.	
	Num-ber.	Tonnage.	Num-ber.	Tonnage.	Num-ber.	Tonnage.
1888	3	1,253	4	3,555	7	4,808
1889	7	1,989	9	9,767	16	11,756
1890	6	4,113	11	11,163	17	15,276
1891	14	2,803	8	10,361	22	13,164
1892	20	6,743	6	13,048	26	19,791

There are six shipbuilding companies in this consular district, but only a few of them are now in operation. The building of ships has considerably decreased during the past year and several of the ship-yards have kept up their work only to give employment to their men. The ships so built were not ordered and are still for sale.

HUGO M. STARKLOFF,

Consul.

BREMEN, January 31, 1894.

FRANKFORT-ON-MAIN.

NATIVE WOODS.

The principal native woods are oak, white walnut, beech, white birch, ash, the Lombardy and silver poplars, and, most important of all, three evergreens, viz, the red pine (*Fichte*), the black fir (*Tannenbaum*), and the Scotch fir, which is called in German "Kiefer." All these trees

are planted and grown under the admirable forestry system of Germany, which has been described in detail in previous consular reports.* There are no longer any primitive forests of any consequence in this country, but the forestry laws, which make the State the guardian of its woodlands, has been so effective that the supply of all woods, except oak (a slow grower), is steadily maintained, and the German wood-pulp makers are able to use native, artificially-planted timber, and sell their product in countries which have the advantage of primeval forests. Through the cession of Alsace-Lorraine in 1870-'71, Germany acquired one-fifth of all the woodlands of France, and obtained thereby a vast supply of valuable timber. Of the above mentioned varieties the most rapid grower is the silver poplar, which in good situations attains at an age of 20 years a diameter of from 20 to 24 inches.

KINDS OF LUMBER USED.

The principal kinds of lumber used are the following: Oak for flooring, parquetry, doors, window casings, stairways, and the general interior finishing of the best class of buildings, also for furniture and the wooden parts of agricultural and other machinery.

Ash for flooring, paneled wainscoting, for railway and street cars, machine frames, the handles of agricultural utensils, and for the cheaper grades of dining and chamber furniture.

Walnut for furniture and cabinetwork, the same as in the United States. The white walnut of Germany, although artificially planted, is plentiful and cheap, but as a cabinet wood it is far inferior in beauty and richness to the black walnut wood of the United States. The latter is imported in considerable quantities for furniture, organ cases, and tables for sewing machines and typewriters, which acquire thereby the appearance of American origin.

Florida cedar is imported for the manufacture of lead pencils and penholders. Of late years the cheaper grades of pencils and penholders have been made in Germany from California and Oregon redwood, but these are specialties which employ only a limited quantity of material.

Pitch pine from the Carolinas was used here in past years for window sash and for cottage furniture, but it is said to shrink after manufacture so as to make bad joints, and so far as can be ascertained it is no longer used to any important extent.

Poplar is used for many kinds of boxes and packing cases, as well as for certain parts of cars and carriages where lightness is especially desirable.

Railway ties are made of oak, beech, and fir, but at the present low prices of metal wooden ties are being gradually replaced by ties of

*Special Consular Reports—Forestry in Europe, 1887.

iron and steel. Few new railways are in construction, and the principal demand for ties is for repairs to the lines already in operation.

Building lumber, viz, rafters, sheathing for slate and tiled roofs, doors, and window frames, painted wainscoting, and the underlaying of parquetry floors, is uniformly of pine and fir. Frame houses, shingled roofs, weatherboarded walls, board or picket fences, and wooden sidewalks are all practically unknown in German cities and villages, and as iron joists and girders and fireproof stairways are now exclusively used in all good buildings the use of lumber or timber of any kind in building is reduced to a minimum. The trusses and framework of roofs, rafters, and beams of sizes larger than 6 inches square are generally made by hewing with broadax, the straight, slender young pines which grow so profusely in the Government forests.

Oaken split staves are used for wine and beer barrels and kegs and for the large casks used in breweries and wine cellars. The smaller staves, up to a length of 4 or 5 feet, are obtained in Germany or imported from Austria-Hungary and Russia. But large oak trees are becoming scarce and costly in most parts of Europe, and the larger class of oaken staves, those from 5 to 10 feet in length, are now imported in considerable and steadily increasing quantities from Missouri, Arkansas, and Tennessee. The best American oak staves are exceedingly tough in fiber, clear and even in grain, and so far as can be ascertained are uniformly preferred by all German coopers who have used them to the large staves of European origin. There are but few large oak trees left in Germany that are available for cutting, and their value may be inferred from the fact that a single tree which was cut some months ago in the Spessart, a forest region near Frankfort, was sold for 1,200 marks (\$285).

IMPORTS OF LUMBER.

The amount of lumber imported into Germany in 1892, and during the first eleven months of 1893, was as follows, in metric tons of 2,240 pounds.

Imports of 1892.

Country.	Timber, round or rough hewn	Squared logs.	Sawn lumber.	Oak staves.
	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>
France.....	12,928			
Netherlands.....	13,134		4,830	
Norway.....	4,082		32,042	
Austria-Hungary.....	720,561	153,224	169,509	32,016
Russia.....	1,038,114	352,504	218,537	2,159
Switzerland.....	1,558		2,273	
United States.....	11,972	4,382	53,224	7,720
Sweden.....		40,288	296,011	
Total.....	1,802,349	550,398	776,426	41,925

Imports first eleven months 1893.

	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>
Austria-Hungary.....	604, 647	101, 886	132, 249	33, 368
Russia.....	911, 875	394, 961	167, 471	2, 308
Netherlands.....	10, 041		2, 868	
Norway.....	3, 457		30, 270	
Sweden.....		38, 279	317, 631	
United States.....	13, 186	4, 376	40, 319	8, 096
France.....	6, 826			
Total.....	1, 550, 032	539, 532	690, 808	43, 770

There were also imported in 1892 17,944 tons of boxwood, of which 9,760 tons came from the West Indies, 3,099 tons from the United States, and the remainder principally from the East Indies and Africa. In the foregoing statistics the difference between classes 1 and 2, i. e., "timber, round or rough hewn," and "squared logs," is this: The first class includes beams, piles, and ship timber imported in the general form in which it is to be used, while class 2 includes the blocks and logs which have been squared to save freight and duty on waste material, and which are imported for the special purpose of being sawn into veneers or other forms of fine lumber for cabinetwork or building purposes. The reason for this latter method of importation will be apparent when the classification and rates of duty in each class are explained.

PRICES.

The prices of lumber in Germany are based upon classifications and methods of measurement, which are somewhat difficult to clearly explain. The American unit of measure per "thousand feet," is not used in this country. Timber is sold by the cubic meter, equal to 35.3 cubic feet; and sawed lumber is sold at retail by the piece and at wholesale by the hundred pieces. This latter system will be illustrated by the following tabular price list, showing the wholesale rates at which pine and fir building lumber are now offered for delivery at Frankfort by lumbermen who have sawmills in the forests of Bavaria, Württemberg, and Baden. These are therefore the prices with which American building lumber would have to compete, exclusive of duty, if introduced into this market.

The subjoined list shows the four standard grades or qualities, which are designated, respectively, in German: "Rein," "ausschuss-rein," "gute," and "ausschuss," which may be translated in their order as "clear," "half clear," "good," and "culls." Under this grading or classification of qualities, the wholesale price per 100 boards or pieces,

16 feet long, from 1 to 2 inches thick, and from 6 to 14 inches wide, per cubic meter, are as follows:

Thick- ness.	Width.	Clear.	Half clear.	Good.	Culls.
<i>Inches.</i>	<i>Inches.</i>				
1	6	\$17.37	\$14.75	\$13.09	\$10.47
1	7	19.99	16.89	14.99	12.37
1	8	24.03	19.75	17.61	14.99
1	9	28.08	22.84	20.46	17.61
1	10	35.22	29.03	25.94	20.70
1	11	41.05	33.55	29.27	23.32
1	12	48.79	39.74	35.46	27.13
1	13	53.55	42.60	38.31	29.03
1	14	58.31	46.88	41.88	31.41
1½	12	69.02	54.74	44.50	33.79
1½	12	83.30	64.26	53.31	40.69
2	12	111.86	88.06	70.92	54.26

The subjoined price list is for units of 100 pieces, 16 feet long, but of special thicknesses other than 1 inch.

Quality.	Thick- ness.	Inches in width.						
		6.	7.	8.	9.	10.	11.	12.
	<i>Inch.</i>							
Unsorted B, clear	1	\$6.42	\$7.85	\$9.15	\$11.42	\$13.80	\$16.42	\$19.04
Do.	1½	7.14	8.80	10.71	12.85	15.70	18.80	21.42
Good A, clear	1	10.23	11.90	13.80	16.66	20.94	23.56	29.03
Box boards	1	8.80	10.47	12.37	14.99	18.08	20.70	23.56

Terms on all sales under the foregoing lists, three months' payment, or 1½ per cent discount for cash. These prices would be equivalent to about \$30 per 1,000 feet for clear pine lumber 1 inch thick, 12 inches wide, and 16 feet long. Whether American lumber can stand the freight and import duty, besides commissions, is the main question which American exporters will readily decide. Oregon pine and redwood from the Pacific coast have been imported to Bremen, Düsseldorf, Cologne, and some other ports of the lower Rhine, but it does not appear that any has come so far inland as Frankfort.

In respect to its pine lumber supply Frankfort occupies the advantageous position of being the first large city on the River Main, down which are rafted vast quantities of logs and lumber from the forests of Bavaria. Part of the logs are sawed in the woods where they are cut, but a large proportion are peeled and rafted down in whole tree lengths to Frankfort, where they are either hauled out and sawed or the smaller rafts are joined together and continue their voyage down the river to the numerous sawmills along the Rhine from Cologne to Duisburg, or to Holland, where they are either sawed for lumber and ship timber or are used as piles in the dike and dock constructions which are constantly in progress in that country. Germany is thus an exporter as well as an importer of logs and lumber, the exports under two classes, mostly pine and fir, amounting in 1892 to 276,473 tons.

CLIMATE.

The climate in this district is similar in mean temperature, rainfall and general character to that of southern Indiana or Kentucky. The extremes of heat and cold are, however, less marked here than in any corresponding climate in the United States.

GENERAL BUILDING.

There is no wooden boat or ship building of any consequence in this district. There are still many wooden vessels in service on the Rhine, but they belong mainly to the older class; the new barges and steamers, which carry most of the traffic on that river and its tributaries, are made of iron and steel.

EXTENSION OF LUMBER TRADE.

In respect to the hard and more valuable woods, the field which is offered in Germany to American exporters is much more promising.

The American black walnut is superior to any cabinet wood found in this country, and there is already a considerable import of that material, chiefly in the form of rough-hewn squared logs, which are landed at Hamburg, under the minimum duty of 50 cents per ton, and sold at auction to dealers and consumers, who saw them up into the required sizes and forms. The advantage gained by this form of importation applies similarly to all other woods. The squared log, which is entered at a duty rate of 50 cents per ton, would, if sawed into boards, be dutiable at \$2 per ton, or \$11.90 per ton if sawed into veneerings. But, on the other hand, few cabinetmakers are able to judge with certainty from outside examination what the interior quality of a large walnut or bird's-eye maple log may be, and many therefore prefer to buy their walnut and other fine lumber ready sawed and seasoned. Black-walnut timber for the German market may be of first or second quality, from 8 to 16 feet long, 6 to 18 inches wide, and 1, 1½, 1¾, and 2 inches thick. The same dimensions apply to ash lumber designed for furniture and house-finishing purposes.

Oak flooring is largely used in this country, but the imported material must compete in price with the home-grown supply and with the oak of Austria and Russia, and whatever business is done in this line must be based on close profits. Oak or ash flooring is rarely laid straight and parallel, but is cut up into lengths of 20 to 24 inches and laid in "herringbone" or other simple patterns on an under sheathing of pine. For this purpose the oak stuff need be only 4 or 5 inches wide, and is readily furnished by small trees such as grow plentifully in some districts of Germany. Oak lumber sent to this country should be, unless otherwise specified, an inch thick, from 4 to 6 inches wide, from 4 to 16 feet long, and seasoned until its weight does not exceed

4,000 pounds per 1,000 feet. The duty would be 20 cents per 100 kilos, or about \$3.63 per 1,000 feet. Russian oak is imported and sold by the *Handelsgeschäft* at Berlin, and in order to meet this double competition American oak lumber would have to be landed at Rotterdam or Antwerp for about \$45 per 1,000, freight to destination and German import duty being additional and subsequently paid by the commission merchant or importing consumer. Ash lumber will have to be similarly landed for from \$35 to \$40 per 1,000 feet. Veneerings of bird's-eye maple or fine walnut and red birch have also been imported to some extent and are much liked, but the high duty, \$11.90 per ton, renders them rather expensive.

There is also a steady and growing demand for American oak staves of the sizes from 4 to 10 feet in length, which are used by coopers in the wine districts along the Rhine and the Moselle, as well as in Baden and Württemberg. It is worthy of note that such staves for the German market should be somewhat thicker than those of similar lengths used at home. This is for the reason that European oak is less tough and strong than American, and the coopers here have become accustomed to thicknesses which Americans have found to be disproportionate and unnecessary. The German coopers are, however, confirmed in their notions, and it will be well to concede half an inch of extra thickness to this prejudice. Dressed staves of smaller sizes, in which the item of labor forms a large part of the cost of production, can apparently be made as cheaply in Germany as in the United States.

Carriage lumber, hubs, spokes, felloes, etc., are imported from our country to some extent, but mainly by parties in Berlin, who keep a large stock and send traveling salesmen to sell supplies to carriage-builders, who in case of large purchases frequently go or send a competent foreman to Berlin, where the wood is selected, piece by piece. It is quite probable that a capable agent or local commission merchant in southern Germany could establish direct relations between American exporters and the principal carriage-makers in this section, but it would be necessary to send only selected wood, every piece of which is up to standard, for any defect in quality would be detected and soon break up a direct trade with consumers.

For the development and maintenance of direct exports of American lumber of any kind to western Germany, no agency would be so effective as an energetic, clever salesman, familiar with the German language and local methods of business, equipped with samples and authorized to receive trial orders from dealers and consumers under specified guaranties and conditions. If prices and qualities were found satisfactory, a trade could soon be established that would in the end take care of itself. If the sending of such agents is not found feasible, the next best method would be to enlist the services of local commission merchants, who should be authorized to make sales on the terms of payment that are offered by dealers who sell native or imported European woods. Exporters who may wish to open correspondence

with an experienced and capable commission merchant in this city, who has already introduced with some success several kinds of American lumber, are referred to Mr. Erwin Roelker, No. 33 Hochstrasse, Frankfurt.

FRANKFORT, February 3, 1894.

FRANK H. MASON,
Consul-General.

HAMBURG.

NATIVE WOODS.

The native woods of the Hamburg consular district are oak, red beech, red and white pine, alder, ash, and poplar. Oak is principally used for ship, mill, and bridge building, while beech is generally employed by house-builders and carriage manufacturers.

Imports of lumber into Hamburg.

Whence imported.	1892.		Average value.	1891.	
	100 kilos.	Marks.		100 kilos.	Marks.
<i>Building material.</i>					
United States, on the Atlantic.....	47, 429	328, 770	7		2, 050
British North America.....				1, 597	13, 500
Prussian Baltic ports.....	107, 335	619, 180	6	131, 238	817, 220
Sweden.....	142, 027	616, 070	4	122, 000	555, 050
Norway.....	76, 353	316, 080	4	57, 732	257, 070
Russian Baltic ports.....	26, 682	140, 390	5	38, 665	168, 610
Other countries.....	1, 024	6, 040	6	189	1, 280
Total by sea.....	400, 850	2, 026, 530	5	351, 619	1, 814, 786
From the Upper Elbe and by railway.....	1, 217, 070	7, 247, 790	6	1, 409, 713	7, 870, 130
<i>Staves.</i>					
United States, on the Atlantic.....	8, 725	83, 220	10	5, 037	47, 440
British North America.....	169	2, 000	12	146	930
Sweden.....	6, 168	42, 170	7	4, 553	32, 310
Bremen.....	349	3, 960	11	318	3, 090
Other countries.....	249	2, 790	11	251	2, 490
Total by sea.....	15, 660	134, 140	9	10, 305	86, 260
From the Upper Elbe and by railway.....	15, 421	123, 370	8	43, 001	344, 010
<i>Boxwood.</i>					
Venezuela.....	10	100	10	1, 842	18, 040
Great Britain.....	1, 565	39, 640	25	1, 441	35, 190
France.....	1, 191	16, 570	14	190	4, 180
Triest.....	388	4, 960	13	196	4, 900
Netherlands.....	103	2, 350	23		
Total by sea.....	3, 257	63, 620	20	3, 669	57, 310
<i>Walnut.</i>					
United States on the Atlantic.....	1, 133, 100	2, 136, 740	189	1, 726, 993	3, 455, 070
Asia Minor.....	14, 903	35, 700	240	15, 138	37, 130
British East India.....	2, 529	3, 140	124	2, 169	2, 000
Russian ports on Black Sea, etc.....	76, 319	271, 390	356	84, 784	327, 010
Turkey in Europe.....	15, 151	44, 600	294	12, 804	23, 750
Italy.....	15, 911	29, 370	185	39, 671	85, 490
Great Britain.....	8, 647	26, 960	312	34, 151	105, 860
France.....	11, 392	23, 930	210	23, 610	83, 380
Belgium.....	3, 096	12, 700	410	755	2, 560
Bremen.....	1, 362	3, 160	232	133	516
Netherlands.....	993	2, 590	261	3, 817	11, 510
Other countries.....	503	1, 600	318	1, 105	3, 170
Total by sea.....	1, 283, 906	2, 591, 880	202	1, 945, 130	4, 137, 440
From the Upper Elbe and by railway.....	2, 218	4, 480	202	8, 276	17, 630

Imports of lumber into Hamburg—Continued.

Whence imported.	1892.		Average value.	1891.	
	100 cbm.	Marks.		100 cbm.	Marks.
<i>Cedar.</i>			<i>Marks.</i>		
Cuba.....	352,039	540,820	154	375,539	505,820
Costa Rica.....	120,162	104,300	87	136,267	102,010
United States on the Atlantic.....	13,694	17,810	130	41,821	69,790
Mexico on the Atlantic.....	15,043	15,910	106	36,135	44,120
British East India.....	24,871	6,510	26	26,363	7,510
Mexico on the Pacific.....	3,244	5,530	170	.....	.....
Santo Domingo.....	5,059	5,010	99	.....	.....
Paraguay.....	.....	.....	.....	77,255	53,230
Argentina.....	.....	.....	.....	49,635	43,770
Nicaragua.....	.....	.....	.....	51,429	39,500
Asia Minor.....	.....	.....	.....	2,620	3,500
Great Britain.....	69,311	60,200	87	6,537	9,510
Italy.....	22,552	40,860	181	.....	.....
France.....	18,622	13,060	70	39,675	35,900
Bremen.....	5,814	6,550	13	3,788	4,100
Other countries.....	261	200	177	1,114	400
Total by sea.....	650,672	876,760	126	848,178	919,160
<i>Ebony.</i>					
Madagascar.....	2,843	68,780	24	4,371	86,740
German West Africa.....	281	3,340	12	279	4,220
Other West Africa.....	3,147	33,390	11	2,242	27,840
British East India.....	923	15,600	17	142	3,390
German East Africa.....	.....	.....	.....	244	2,950
Other East Africa.....	518	11,570	21	44	980
Venezuela.....	310	6,000	19	155	1,160
Great Britain.....	623	14,740	24	1,627	30,900
France.....	437	7,430	17	931	16,780
Netherlands.....	101	3,900	39	311	6,050
Other countries.....	15	120	8	60	1,060
Total by sea.....	9,228	164,870	18	10,406	182,070
From the Upper Elbe.....	.....	.....	.....	39	690
<i>Rosewood.</i>					
Brazil.....	1,802	39,190	22	402	14,910
British East India.....	1,380	28,210	20	1,675	34,100
France.....	594	26,050	44	755	34,130
Great Britain.....	147	4,710	32	622	18,060
Belgium.....	.....	.....	.....	161	4,390
Bremen.....	.....	.....	.....	119	2,950
Other countries.....	.....	.....	.....	2	120
Total by sea.....	3,923	98,100	25	3,736	108,660
<i>Veneers.</i>					
United States on the Atlantic.....	75	7,050	94	45	5,840
France.....	398	50,480	127	592	73,650
Great Britain.....	100	11,060	111	145	34,520
Other countries.....	9	1,830	203	18	3,030
Total by sea.....	582	70,420	121	800	117,040
From the Upper Elbe and by railway.....	647	63,430	98	983	114,040
<i>Guaiacum.</i>					
Venezuela.....	4,749	71,830	15	2,074	35,400
United States on the Atlantic.....	531	7,070	13	.....	.....
Curaçao.....	424	5,520	13	2,478	44,960
Paraguay.....	112	2,220	20	.....	.....
Santo Domingo.....	129	1,220	9	2,979	42,800
Haiti.....	105	530	5	2,060	13,740
Great Britain.....	754	12,770	17	1,177	19,980
The Netherlands.....	287	4,540	16	.....	.....
Other countries.....	88	1,640	19	268	2,840
Total by sea.....	7,179	107,340	15	11,036	159,720
From the Upper Elbe and by railway.....	47	700	15	46	670

Imports of lumber into Hamburg—Continued.

From—	1892.		Average value.	1891.	
	100 Cbm.	Marks.		100 Cbm.	Marks.
<i>Mahogany.</i>			<i>Marks.</i>		
Mexico on the Atlantic	149,666	386,670	258	208,320	532,090
West Africa	120,035	223,380	186	145,768	317,610
Cuba	76,108	124,100	163	95,787	195,230
Santo Domingo	21,024	50,120	238	89,777	251,690
United States on the Atlantic	5,209	16,640	319	13,426	42,640
British East India	8,857	16,140	182	16,787	29,230
Columbia on Pacific	4,208	8,420	200		
Haiti	875	3,230	370		
Columbia on the Caribbean Sea	1,710	3,060	179		
Guiana	2,141	2,600	121		
Madeira				1,142	3,700
Curacao				993	2,500
Great Britain	21,425	56,250	263	23,987	80,250
France	6,872	16,950	247	18,485	47,260
The Netherlands	2,089	7,950	381	449	1,230
Other countries	114	290	254	3,453	4,440
Total by sea	420,333	915,800	218	618,374	1,507,870

During 1893 there were imported into Lübeck as follows:

From—	Standards.*	Value.
		<i>Marks.</i>
Russia	20,000	3,500,000
Sweden	32,500	4,800,000
Prussia, coastwise	10,500	1,500,000
Total	63,000	9,800,000

* Standards of 4 tons each.

During 1892 the imports of straight timber at Kiel amounted to 117,980 cubic meters, besides 436,880 kilos of sleepers. The timber arrived from the following countries:

	Cubic meters.
German Empire	37,823
Russia	25,413
Sweden	53,534
Norway	226
The Netherlands	969
Denmark	15

Sweden and Finland supply rafters and pine and fir boards. Statistics of the importation of lumber into the port of Flensburg are not obtainable.

CLIMATE.

The climate of the Hamburg consular district is by no means a pleasant one. Easterly cold winds prevail in winter and southwesterly winds, with much rain, in summer. Last summer, however, was an exceptionally dry one, so dry that, owing to the partial failure of the hay crop, the farmers were compelled to import hay from other countries, the United States being among these.

GENERAL BUILDING.

Considerable house, ship, and railroad building is carried on in this district, and in this respect I would refer to the enormous growth of the cities of Hamburg, Altona, and Kiel, the new North Sea and Baltic Canal, with its many locks, bridges, and railways, and to the shipbuilding yards of Hamburg, Kiel, Lübeck, Flensburg, and Ros-tock.

EXTENSION OF LUMBER TRADE.

I find that the general opinion of those engaged in the importation of lumber from the United States is that the American dealers do not pay sufficient attention to the desires and wishes of the German importers; that they very often ship qualities inferior to those ordered, and are inclined to class as prime what the German dealer would call only medium lumber.

In order to extend the lumber trade of the United States the shipments of inferior lumber must be stopped, as far as practicable, so as to allow prices to recuperate. At the close of 1892 the stock of walnut logs in Hamburg was 1,400; at the close of 1893 it was 10,000. This is sufficient to supply the demand for some time to come. Notwithstanding this overstocking of the market, I am told that prime walnut logs are always salable at fair prices, the larger the logs the better the prices. Small logs are difficult to get rid of.

The low freights at which small sailing vessels carry lumber, and especially sleepers, from Sweden to the North German ports, almost preclude the competition of countries as far distant as ours.

CHAS. H. BURKE,
Vice and Acting Consul.

HAMBURG, *February 7, 1894.*

NORWAY.

NATIVE WOODS.

Southeastern Norway, where this consulate is located, was formerly well covered with natural forests. Lumber has, consequently, for several centuries past been a staple export. Norway, as a whole, is still well wooded, and it is estimated that 77,000 square kilometers (24 per cent) of the superficies of the country are still covered with forests. But they have gradually become very thin in many districts, especially on the high mountains and in marshy places. In the western districts, along the extensive seacoast, the forests have now disappeared altogether, and the only woods left are at the inner extremity of the deep and narrow fjords, sometimes over 100 miles from the open sea.

In earlier times, when wood had no value as an article of commerce, and when people had not yet begun cutting down the forests recklessly, about half of the country was wooded and the forests covered many sections now perfectly treeless. There were even forests of large oaks and other valuable trees which have now almost disappeared. The present decline in the forests is due to an excessive consumption of wood for fuel, and fencing in land, as well as to large fires in many districts.

The native woods of Norway are chiefly pine or spruce (*Abies excelsa*), fir (*Pinus silvestris*), birch (*Betula odorata*), and alder (*Alnus incana*). The two first, of which the great forests exclusively consist, grow abundantly everywhere in eastern and northern Norway, even up to the seventieth degree north latitude. Trees between one hundred and one hundred and fifty years old show a considerable size, but those now felled and floated down the rivers to the mills are generally of small dimensions, showing the rapid decline in the forests.

EXPORTS OF LUMBER.

The aggregate value of the Norwegian forests was lately estimated at about \$110,000,000, and they are supposed to give employment to nearly 14,000 persons. In 1892, for which year we have the latest official statistics, the total export of lumber of all kinds amounted to 1,894,586 cubic meters, consisting of planed and sawed lumber, hewn timbers, pit props, and other round timber, staves, and firewood.

In the above figures are, however, included about 300,000 cubic meters of lumber of Swedish production imported into Norway to be manufactured in the mills and reexported to foreign countries.

The total value of the lumber exports in 1892 was estimated at \$7,461,120.

The principal markets to which Norwegian lumber was exported in the said year were as follows:

	Cubic meters.		Cubic meters.
Great Britain	1, 232, 123	Sweden	40, 479
France	136, 096	Denmark	40, 372
Holland	127, 264	Africa	56, 809
Belgium	116, 687	Spain	37, 487
Germany	67, 332	Australia	24, 659

Though the forests of Norway, having no legal protection, have been carelessly cut down all over the country, it does not seem likely that lumber from the United States will be needed in the near future beyond the small amount now imported chiefly for the shipyards, and valued in 1891 at \$38,056, and in 1892 at \$15,196.

KINDS OF LUMBER USED.

Pine wood is extensively used for house-building, fences, fuel, and lately to a great extent in the manufacture of pulp for paper mills. A

great exportation of same for foreign paper mills has also lately sprung up.

Fir is a harder and more expensive wood than pine, and is commonly used in ship and house building and for furniture. The shipyards, which have fewer wooden vessels on the docks year after year, still import some foreign woods, such as pitch pine, oak, and teak, chiefly from Russia, the German provinces on the Baltic, and also from the United States.

IMPORTS OF LUMBER.

The lumber of all kinds imported into Norway in 1892 from foreign countries is given in the official statistical tables as follows:

Sweden:		Belgium.....	\$161
By land	\$1,097,567	Great Britain	22,164
By sea	57,646	France	268
Denmark.....	9,568	Spain	53
Finland	2,090	United States	15,196
Russia	76,434	All other	214
Germany	53,734		
Holland.....	12,864	Total.....	1,847,959

DUTY AND PRICES.

There is no import duty on lumber in this country, nor has any export duty been levied since July 1, 1893.

The prices quoted in this market for the different kinds of lumber exported can not easily be given, but those quoted in the official statistics published for 1892 are, as I understand, correct, being based on reliable statements made at the principal exporting places, and prices have not on an average undergone any noteworthy change since then.

More than 19 decimeters in length.

	Per cubic meter.
Planed lumber, all kinds	\$6.30
Sawed lumber:	
Planks, deals, boards	4.82
Boards of inferior quality	3.59
Spars.....	3.75
Telegraph poles.....	3.62
Mining timber	1.87
Pit props	1.87
Hewn timber	2.00
Balk, French poutrelles, and similar	3.62
So-called Danish lumber	2.40
Packing-box shooks	4.95
Staves, ordinary, sawed	3.48
Staves of birchwood, sawed.....	5.89
Logs for the manufacture of cellulose	1.60
Small wood, cut full, etc.....	1.60

CLIMATE.

This district lies between the fifty-eighth and the sixty-second and one-half degrees north latitude, and is bounded on the south by the Skager-Rack and sheltered from the sea by numerous small islands scattered along the coast and extending to the Swedish border. On the northeast and west it is surrounded by chains of high mountains, some of which rise to over 8,000 feet. The yearly mean temperature on the coast is between 42 and 44° F., but declines to 41° in this city, which is situated at the head of the long Christiania Fjord and has more of an inland climate.

While the winters are generally mild on the coast, where the thermometer has never gone below 5° above zero, in Christiania the mercury has sometimes fallen to 22° below zero, and in the northern section of this district it is often as low as 40°. But the cold waves are seldom of long duration.

The greatest heat and cold are found in the inland districts, while on the coasts the winters are mild and the summers cool. The mean temperature of the coast within this district is given for the month of July as between 57 and 63° F. In this city the summer heat sometimes rises to 90° F.

The difference noted in atmospheric temperature between the inland district and the coast, also applies to the dampness of the air. The average humidity on the coast is, as a rule, much greater than farther up in the country. Everywhere the greatest humidity prevails during the winter, and the month of May is marked by great dryness. The amount of annual rain at Christiania is only 0.5 meter to 2 meters at Bergen on the western coast, and it falls even to 33 centimeters on the mountains to the north of this district. Heavy fogs often occur here in winter. Neither wind nor rain is of great force or duration in this district. Thunderstorms are of rare occurrence in this section of Norway.

GENERAL BUILDING.

Wood is generally used for housebuilding, owing to its abundance and cheapness, even in cities of some importance. In the principal cities, however, Christiania, Bergen, and Drontheim, there are great restrictions laid on its use and brick houses are now the rule. The material used in the interior of dwelling houses, as for floors, staircases, window casings, etc., continues to be wood. The roofs are generally covered with tiles, and, lately, in the cities also with slate.

Shipbuilding has from time immemorial been one of the principal industries of this country, and the interesting copy of the ancient Viking ship of a thousand years ago, which was lately sailed over from Norway to the World's Fair at Chicago, bears witness to the great skill of the old Norse shipbuilders. At the end of 1892 the Norwegian merchant marine numbered 7,506 vessels, of an aggregate

tonnage of 1,744,993 tons, manned by 58,631 seamen. The greater part of these vessels were built in Norway, and the addition to home-built vessels in 1892 was 105 vessels (78 sailing vessels and 27 steamers), with a tonnage of 25,969 tons.

Shipbuilding during the last five years gives the following figures:

Year.	Sailing vessels.		Steamers.	
	Number.	Tonnage.	Number.	Tonnage.
1888.....	37	9,369	7	2,038
1889.....	56	7,090	20	6,285
1890.....	98	12,646	39	12,142
1891.....	93	17,442	39	12,028
1892.....	78	17,148	27	8,821

In 1892, 14 steamers of 9,792 tons, and 110 sailing vessels of 58,352 tons were bought of foreign countries, at an estimated value of \$663,568 and \$1,120,508, respectively.

The Norwegian railroads, the greater part of which lie within this district, had, up to June 30, 1893, a total length of 1,562 kilometers, of which 950 kilometers were of narrow gauge (1.067 meters) and 592 kilometers of wide gauge (1.435 meters). Their aggregate cost was about \$35,000,000. Railroad-building is now going on in several districts of southern Norway, and only a few days ago the Storthing voted about \$13,500,000 for the construction of new lines in different sections of the country.

GERH. GADE,
Consul.

CHRISTIANIA, March 3, 1894.

PORTUGAL.

THE AZORES.

NATIVE WOODS.

Owing to the very limited quantity of lumber imported or consumed there is little to report of interest upon this matter within the Azores. The native woods are scarcely worthy of mention with the exception of the "Faia," a small tree, from which the name of the island "Fayal" is said to be derived. It is this tree which furnishes the firewood of this island. Its grain and its natural color, somewhat resemble the wood of the butternut. As this tree never grows to be much more than a large shrub it is seldom used except for firewood. Some pine is also grown here, but so small in amount and so poor in quality as to be unworthy of consideration.

KINDS USED AND IMPORTED.

Northern white pine and Southern pine are the principal timbers used. The imports amount to about 200,000 feet yearly at Fayal, and probably more than 500,000 feet to all the Azores—all from the United States.

DUTY AND PRICES.

An import duty of about \$11 per 1,000 feet, varying a little with the dimensions of the lumber, is imposed.

The lumber is retailed at about \$42 per 1,000.

CLIMATE.

The climate is temperate and equable and similar to that of the Bermudas, but with cooler summers. The atmosphere is humid. The range of the thermometer Fahrenheit during the summer is generally from 70° to 76° or 78° rarely rising above 80° or falling below 68°. During the winter its range is generally from 60° to 64° or 66°, but during the north winds, which are not prevalent, it frequently falls below this, but rarely as low as 50°. Although during the tempestuous weather of the afternoon of the 10th instant, during a slight fall of hail, the thermometer fell for a short time to 45°, but such an occurrence I am told is rare.

GENERAL BUILDING.

Building operations are very limited. A few boats for fishing and for communication with the adjacent island of Pico, are built here, but rarely any larger boats.

There are no railroads unless the two might be so called that are in use in the construction of the breakwaters that are being built at Fayal and at St. Michael's, which are only a little longer than the length of the breakwater upon which they are used.

The few buildings being constructed are of stone with the smallest possible amount of wood finishings.

LEWIS DEXTER,
Consul.

FAYAL, January 18, 1874.

RUSSIA.

RIGA.

NATIVE WOODS.

This is one of the largest lumber exporting districts of Russia, the value of its lumber exports amounting to about \$6,000,000 per annum.

The native woods are: White wood of superior quality, being fine-grained and mostly free from knots, and redwood (yellow), mostly of an inferior class.

There are no uncommon kinds of wood; very little oak, save in Volhynia, but some birch and alder.

KINDS OF LUMBER USED.

The white wood is preferred for lumber, the red being used more for sleepers and square timber.

DUTY AND PRICES.

The import duty is about \$7.50 per standard of 165 cubic feet.

The prices at present are as follows, per standard: 3 inches by 12 inches and 11 inches, \$35 per standard; 3 inches by 9 inches and 11 inches, \$32.50 per standard; 3 inches by 8-7 inches and 11 inches, \$25 per standard; 1 inch, about 10 per cent dearer.

CLIMATE.

The climate is somewhat like the Canadian, perhaps a little milder.

GENERAL BUILDING.

The building of small wooden sailing vessels on this coast is very limited, and only wood of the country is used in their construction.

N. P. A. BORNHOLDT,

Consul.

RIGA, *January 15, 1894.*

TURKEY IN EUROPE.

NATIVE WOODS.

The native woods in this consular district are ash, beech, chestnut, cypress, hickory, lime, maple, oak, pine, poplar, sycamore, and walnut. Of these only the pine (yellow and white), oak, and beech are used for lumber to any considerable extent.

LUMBER USED AND PRICES.

All lumber is sold in the rough, but that suitable for dressing mostly used is white and yellow pine, with some oak for flooring and natural-wood finish. For frame stuff and rough lumber oak and pitch pine are the most commonly used. The lumber on sale here is sawed quite different from that in the American market. The white pine is sold in joists from 2 to 3½ inches thick by 8 to 12 inches wide, and of various

lengths, from 10 to 26 feet. These pieces are resawed by hand with a whipsaw to the desired size for sash, doors, flooring, moldings, and other finishing material. This class of lumber varies in price according to quality and size, the larger pieces being preferred. It is sold by the piece, but the price in square feet measure is from \$16 to \$19 per 1,000 feet. The boards used for siding, partitions, and other purposes are pine, both yellow and white, and are sawed about three-eighths and three-fourths of an inch thick by 10 to 12 inches wide, and from 10 to 16 feet long. When comparatively clear of knots they sell at \$23.75 to \$26 per 1,000 feet, according to length and thickness, but when full of knots and of short lengths sell as low as \$11 per 1,000 feet. Frame material is generally sold in beams from $4\frac{1}{2}$ to $12\frac{1}{2}$ inches square, of various lengths, up to 37 feet. The oak beams, best quality, sell at \$24 to \$27 per 1,000 feet. The pine frame lumber is sold in similar sizes and is resawed by hand for rafters, studding, etc., and sells for from \$22 up to \$28 for best quality and long pieces. Pine flooring dressed on one side sells at \$28 to \$32 per 1,000 feet. The best grade is not entirely clear of knots and the cheapest contains some black knots.

LUMBER IMPORTED AND DUTY.

The lumber imported is mostly from the Black Sea ports; a small quantity is imported from Sweden, but none from the United States. That from Roumania and Austria is preferred by the carpenters. The latest official figures obtainable on the imports of lumber are as follows:

Year ending March 13—	Pieces.	Value.
1891.....	4,564,868	\$1,139,300
1892.....	8,211,051	1,406,527

The duty on foreign lumber imported into Turkey is uniformly 8 per cent ad valorem. The Turkish Government charges a tax of 20 per cent ad valorem for cutting timber in the forests of Turkey, and 12 per cent ad valorem duty on lumber when shipped from one province to another. These charges have greatly injured the production of home lumber and the owners of forests are making an effort to get relief, but with no apparent prospects of success.

CLIMATE AND GENERAL BUILDING.

This part of Turkey has usually a very temperate climate, but, at long intervals, the winters are quite severe.

Owing to numerous disastrous conflagrations, the authorities of Constantinople have prohibited the construction of wooden buildings, but in other parts of the Empire no such prohibition exists, and wooden

structures are the general rule. There is a reasonable amount of general improvement in Turkey, but very little shipbuilding and but few railroads are being built. The railroads already completed are substituting iron for wooden ties.

TRADE OUTLOOK.

The prospects are not flattering for the extension of the sale of American lumber in this district, owing to prices and want of shipping facilities, yet with a proper effort it might be made successful. Architects with whom I have conversed, are of the opinion that American lumber, owing to its uniformity, thereby saving labor, would be eagerly sought after by the builders if once introduced in this market.

Owing to the prejudice against innovation in the lumber business and the suspicion with which the native dealers look upon all foreigners, together with the peculiar mode of selling by the piece, it has been with the greatest difficulty that I have obtained sufficient reliable information for this report.

LUTHER SHORT,
Consul-General.

CONSTANTINOPLE, *April 26, 1894.*

UNITED KINGDOM.

BIRMINGHAM.

NATIVE WOODS.

The native woods of England are oak, elm, ash, beech, poplar, fir, walnut, chestnut, plane, holly, sycamore, hawthorne, birch, pine, lime, willow, box, larch, maple, cherry, yew, aspen, and hazel.

KINDS OF LUMBER USED.

Timber is used chiefly in building and fencing, for shipbuilding, wagon and carriage making, and the manufacture of furniture.

In building, oak is used for the better classes of work, such as staircases, window sills, doors, lintels, joists, beams, etc. It was formerly used largely for floors and wainscoting. Elm is used for purposes which are to bear extreme wet and dryness, such as water mills, waterworks pipes, pumps, and coffins. Ash is used for spear handles, carts, wheelbarrows, plows, harrows, axletrees, and oars. Beech is used for many kinds of furniture, such as chairs, stools, and bedsteads. Poplar is used for all sorts of white wooden vessels, and being very light, soles and heels for shoes. Willow is used for basket making. Holly is a very hard white wood with a close grain, and is used for dressing boxes

and other fancy articles. Walnut is largely used for drawing and dining-room furniture of the better class. The lumber of the fir tree is called deal, and is used largely for flooring, doors, windows, frames, and in ordinary building no other wood is used for this purpose. Box-wood is used for engraving upon, and the turner finds it most useful for mathematical instruments, pegs, screws, tops, chessmen, etc., being very hard and readily taking polish.

IMPORTS OF LUMBER.

The chief sources of supply are the north of Europe, especially the countries on the Baltic, Norway, Sweden, Russia, Germany, and the British North American Colonies and the United States. Considerable supplies are also drawn from Belgium, Spain, and the West Indies.

Mulhall gives the value of the timber consumed yearly in Europe as £190,250,000, and in the United States, £77,400,000. The consumption per head in Europe is 41 cubic feet; in the United States, 58 cubic feet. Timber and gold are, according to the same authority, almost the only articles which have not declined in value in the last decade.

The lumber imported into the United Kingdom from 1889 to 1892 is shown in the following table:

Kinds.	1889.	1890.	1891.	1892.
	<i>Loads.*</i>	<i>Loads.</i>	<i>Loads.</i>	<i>Loads.</i>
Hewn.....	2,393,223	2,278,171	2,250,692	2,469,139
Sawn or split	5,319,326	4,778,676	4,379,060	5,090,788
Staves	170,086	156,003	129,987	136,063
Total	7,882,635	7,212,850	6,759,739	7,696,000

* A load equals 50 cubic feet of squared timber.

The total imports from the United States in 1892 were as follows, in loads: Hewn, 165,418; sawn or split, 407,854; staves, 22,761; total 596,033.

PRICES.

Lumber and timber is sold by the load, the cubic foot, the square foot, the foot run, the ton, the pound or the number of pieces, so that it is difficult to fix a basis, owing to its lack of uniformity.

CLIMATE.

The climate is temperate and is noted for its sudden changes. There is a good deal of rain and moisture in the atmosphere. The average temperature in winter is about 40°, and in a hot summer as high as 90° and 92°, and in an ordinary summer about 75°.

GENERAL BUILDING.

There is no shipbuilding in this district, but there are extensive wagon works such as the Midland Wagon Company, the Birmingham

Wagon Company. Timber is extensively used in the Black Country here, that is, the district between Wolverhampton and Birmingham, for supporting the roofs of workings in pits.

EXTENSION OF LUMBER TRADE.

It seems to me from my observation and as the result of inquiries, that more of our lumber might find a market here for use in making furniture if close attention were given to the matter by our manufacturers, but the radical differences in tastes and customs would render necessary a close study of the local conditions here. Most of the wooden utensils used in housekeeping are made in the United States and find a sale here at good prices.

GEORGE F. PARKER,
Consul.

BIRMINGHAM, *January 30, 1894.*

DUNDEE.

NATIVE WOODS.

The native woods are oak, ash, elm, beech, birch, larch, spruce fir, and silver fir; the first five varieties mentioned being hard woods. Of these oak, ash, and elm are mostly used for agricultural implements, wagons, carts, wheels, and van making purposes, for all of which they are well adapted. Beech is used mostly for wheelwright work, such as cogs for wheels and carpenters' planes, and tools of various kinds; birch is principally used by turners for making bobbins, spools, etc.; larch is used largely for fencing purposes, and also by cartwrights in making shafts, sides, and bottoms of carts, and although not a hard wood, it is considered a very good wood for wear and strength; spruce fir and silver fir are chiefly used for fencing and coal-pit sleepers. None of them are of a lasting quality, and are only used for these and like purposes which are of a temporary nature.

IMPORTS OF LUMBER.

Most of the wood used in this district comes from the Baltic and neighboring ports, and these are generally known in the trade here as "Baltic woods." Navigation on the Baltic is open only from May to December, so that the full supply has to be imported during this period.

From the ports of Archangel and Cronstadt is shipped a very fine quality of red and white deals and battens, boards, etc., in sizes from 4 by 1 to 11 by 3; these are considered the best Baltic woods imported.

Norway sends only a very low quality of red or white deals or bat-

tens; its forests of good wood having been exhausted, it now draws large supplies from Sweden to keep its mills going.

Sweden sends large quantities of red and white deals and battens, and also baulk timber from 6 to 12 inches square. The Swedish wood can be had of very fine quality, and it is graded in quality from 1 to 6, the first four qualities being supposed to be entirely free from rot. The sizes usually sent from there run from 4 by 1 to 12 by 4, and the Swedish shippers pay more particular attention to the wants of their customers than do any other shippers.

Germany sends red timber, in large quantities, which is rather coarse, but of a healthy nature and strong fiber. Germany, also, ships large quantities of fir for railroad sleepers, which are cut to size before being shipped.

Woods from the United States are now largely superseding some of the former, notably beams and wood for churches, halls, etc., and sawn pitch pine logs which are of very fine quality and cut to dimensions required. American oak, for wagons is also largely imported, as well as all sorts of woods used in the manufacture of hubs, spokes, and felloes. Canary, or American white wood, is growing in favor, and if it could be got in longer lengths—say from 24 to 34 feet or upwards—it would doubtless be used more extensively, as it would then be suitable for ship decks, etc., the short lengths in which it is now being received rendering it unsuitable for these purposes.

It would be hard to say which kinds of lumber are preferred, the use of the various kinds being solely dependent upon the quality and price, keeping in mind the particular purpose for which it is to be used.

Timber was imported into this district during 1893 as follows, in loads of 50 cubic feet:

Imported into—	Hewn timber.	Sawn timber.	Total.	Imported into—	Hewn timber.	Sawn timber.	Total.
Aberdeen.....	7, 314	41, 143	48, 457	Perth.....	1, 199	6, 073	7, 272
Arbroath.....	468	2, 873	3, 341	Peterhead.....	697	9, 169	9, 866
Dundee.....	8, 530	48, 264	56, 794	Wick.....	532	2, 162	2, 694
Lerwick.....	81	473	554	Total.....	20, 453	132, 853	154, 200
Montrose.....	2, 532	22, 690	25, 222				

No statistics are available showing these imports by countries, but it is estimated that of the 56,794 loads imported into Dundee, 4,500 came from Canada and 5,000 from the United States.

PRICES.

The prices of lumber vary considerably; during the past ten years there has been a steady increase.

The following tables give the prices of the best qualities imported into this district:

Russian:

Archangel—

First red, 11 by 3.....	per standard*..	\$68.12
First red, 9 by 3.....	do.....	58.39
First white, 11 by 3.....	do.....	36.50
First white, 9 by 3.....	do.....	34.06
First white, 7 by 2½ and 3.....	do.....	21.90
First red, 7 by 2½ and 3.....	do.....	38.93

Cronstadt—

First red, 11 by 3.....	do.....	58.39
First red, 7 by 2½ and 3.....	do.....	40.14
First white, 11 by 9.....	do.....	38.93
9 by 3.....	do.....	38.28
7 by 2½ and 3.....	do.....	25.55
6 by 2½ and 3.....	do.....	24.33
5 by 2.....	do.....	21.90

Swedish:

First red, 11 by 3.....	do.....	65.69
9 by 3.....	do.....	60.82
7 by 2½ and 3.....	do.....	43.79
6 by 2½.....	do.....	34.06
First white, 11 by 3.....	do.....	38.93
9 by 3.....	do.....	36.50
7 by 2½ and 3.....	do.....	25.55
6 by 2½.....	do.....	23.18

Baulk timber—

White, 6 to 8 feet.....	per load..	3.90
Red, 9 to 12 feet.....	do.....	8.52

Norwegian:

White deals.....	per standard..	26.86
Battens.....	do.....	21.89

German:

9 by 11 red baulk timber, 29 to 30 feet long.....	per load..	11.18
12" side, 26 feet long.....	do.....	14.69
Oak straights, 18 feet average.....	do.....	19.46

Canadian:

Yellow pine, prime logs, 20" on side.....	string measure..	4.86
Prime deals, 14 inches wide.....	per standard..	107.05
Elm.....	per load..	17.03
Oak, deep-sided.....	do.....	30.43

American:

Pine hewn logs, 100 cubic feet average.....		12.40
Pine sawn logs, 35 cubic feet average.....		11.19
Prime pitch pine lumber, 1 to 1½ inch thick.....	per standard..	51.09
Large canary or white wood logs.....	per load..	24.33
Walnut (generally badly made).....	do.....	34.06
Wainscot oak.....	do.....	30.43

The foregoing prices are qualified as follows: Free on board at Archangel, freight to Dundee \$9.73, per standard; free on board at Cronstadt, freight to Dundee, \$6.27 per standard; free on board at Swedish ports, freight to Dundee, \$5.84 per standard; free on board in Norwegian ports, freight to Dundee, \$4.86 per standard; German

*The standard equals 165 cubic feet; the load, 50 cubic feet.

lumber prices include costs, freight and insurance; free on board in Canadian ports, freight to Dundee, \$10.94 per standard; American prices include costs, freight, and insurance.

CLIMATE.

The climate of the east coast of Scotland is equable, and, generally speaking, drier than that of the west coast, the average annual rainfall in this district for the past ten years being 26.05 inches. No extreme variations in temperature mark the climate. In the year 1893 the highest reading of the thermometer in the shade was 86°, registered on June 18, while the lowest was 19°, on January 6. The average temperature in summer is about 60° and in winter 39°.

GENERAL BUILDING.

There are three shipbuilding yards in Dundee, from which there were five launches during 1893, viz, three ships, a bark, and a barge, the gross tonnage being 6,340. This was, however, a very bad year for the trade, the gross tonnage for the year 1892 being 21,990. The prospects at present, however, are brighter, and during the first two months of this year orders for five vessels, representing a gross tonnage of 6,661 tons, have been secured, so that it may be counted on that a much larger amount of timber will be used in this industry than during the past year.

JOHN M. SAVAGE,
Consul.

DUNDEE, *April 20, 1894.*

FALMOUTH.

NATIVE WOODS.

The supply of native woods, elm and ash, chiefly, is about equal to the demand. It appears, however, that landowners are neglecting to plant as fast as the timber is cut, especially on the duchy properties, where plantations and woods have been cleared and none planted on land that is useless for other purposes—and where good ash and elm can be grown. Others are planting larch fir, which makes rapid growth here. Besides the elm, ash, and fir, oak, beech, chestnut, and poplar grow here.

KINDS OF LUMBER USED.

The principal kinds of foreign lumber used are red and white fir from Norway and Sweden; yellow, red, and pitch pine, oak, spruce, mahogany, hickory, ash, walnut, birch, and elm from America, and mahogany from Africa. Other woods not so generally used are teak, maple, cedar, lignum-vitæ, rosewood, American whitewood, Oregon pine, kauri pine, and greenheart.

IMPORTS AND PRICES OF LUMBER.

Lumber is imported from Norway, Sweden, Russia, Finland, Africa, Australasia, East and West Indies, and all parts of America.

The current wholesale prices, landed, are as follows:

Quebec:

Yellow pine.....	cubic foot..	\$0.30 to	\$0.60
Red pine.....	do....	.32	.40
Oak.....	do....	.60	.68
Elm.....	do....	.44	.48
Ash.....	do....	.36	.48
Birch.....	do....	.32	.42
St. John.....	do....	.28	.36
Nova Scotia.....	do....	.24	.28

Deals and yellow pine:

First quality.....	standard..	97.20	121.50
Second quality.....	do....	72.90	80.19
Third quality.....	do....	28.56	29.76

United States:

Pitch pine, hewn.....	cubic foot..	.24	.30
Pitch pine, sawn.....	do....	.24	.28
Oak logs.....	do....	.30	.48

Teak, East Indies.....	load*..	46.14	51.00
Greenheart.....	do....	29.16	34.02

Mahogany:

San Domingo.....	foot of 1 inch..	.09	.14
Cuba.....	do....	.08	.12
Honduras.....	do....	.08	.11
Mexico.....	do....	.07	.13

Cedar, Havana.....	do....	.07	.09
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Walnut:

Italy.....	do....	.06	.10
United States.....	do....	.06	.10

Maple (bird'seye).....	cubic foot..	.60	.84
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Rosewood:

Rio de Janeiro.....	ton..	41.28	53.46
Bahia.....	do....	29.16	43.74

Lignum-vitæ:

San Domingo.....	do....	19.44	43.74
Haiti.....	do....	14.58	29.16

Timber:

Riga.....	cubic foot..	.32	.36
Stettin.....	do....	.32	.38
Sweden.....	do....	.24	.30
Norway.....	do....	.20	.22
Finland.....	do....	.24	.28

Oak, Dantzic.....	do....	.44	.48
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Wainscot logs:

Riga.....	do....	.96	1.02
Memel.....	do....	.96	1.02

*A load of lumber is usually 50 cubic feet of squared timber; 40 cubic feet of unhewn timber; and 600 superficial feet of inch planking. (See report from Newcastle-upon-Tyne.)

Deals:

First, Archangel	standard hundred..	\$80. 19	\$87. 98
First, St. Petersburg	do....	65. 61	75. 13
Second, St. Petersburg	do....	51. 03	58. 30
Wyburg	do....	41. 31	46. 17
Gefle	do....	48. 60	53. 46
Göthenburg	do....	46. 17	53. 46
Finland	do....	41. 31	48. 60

Prepared flooring:

Red, Norway	do....	43. 74	46. 17
Mixed white, Norway	do....	34. 62	36. 45

HOWARD FOX.

FALMOUTH, *February 26, 1894.*

GLASGOW.**NATIVE WOODS.**

The native woods of Scotland cut but little figure, as they do not come in competition with any of our timber and lumber. The native woods are Scotch pine, larch, fir, and beech. They are used only in limited quantities for cheap articles; the timber is short, small, and knotty.

KINDS OF LUMBER USED.

In shipbuilding, part of the masts are of pitch pine, which is also used for flooring of decks, and for ceiling and sheathing. Elm is sometimes used for ceiling and sheathing. The deck houses are generally built of white pine and teak and the cabins are lined with various woods, teak, principally, in my observation. As nearly, if not all, the ships built on the Clyde are now made of iron, the consumption of lumber and timber in shipbuilding has materially decreased, compared with the time of wood shipbuilding. Oak is used extensively in the building of railway carriages; 80 per cent of the oak imported is used for this purpose.

White birch is preferred for spool wood by the thread manufacturers. This comes mostly from Maine, and since I have been in charge of this consulate every American vessel reporting to me has been loaded with this wood. The American birch seems to be considered of the best quality and the most marketable. The birch from Sweden, Norway, and Nova Scotia is inferior to ours. Large birch spools, or bobbins, manufactured in Sweden and Norway are used here. These might be displaced by the same size of manufactured spools from our birch. The thread-makers generally prefer to buy their spools ready-made and direct from the manufacturers. Some sycamore, or plane, and ash are also used in the manufacture of spools.

All the houses here are built of stone, and wood is only used in the interior, pine, principally. Oak and maple are used in public and expensive private buildings; hickory is used only in mechanical appliances and golf sticks. White wood or poplar is used for cabinetwork; the only superior wood which displaces it is red cedar, which is more expensive. The pine most sought after comes from the western coast of the United States, and is called here Oregon pine.

IMPORTS OF LUMBER.

I have had some difficulty in getting certain information upon this subject. The collector of customs here could not give it, unless he made a special compilation. I find, however, in a return to the House of Commons of trade and navigation, the quantity of lumber and timber, and value of the same, imported into the United Kingdom for the eleven months ending November 30, 1893, which I here give:

From—	Hewn.		Sawn, split, planed, or dressed.	
	Loads.*	Value.	Loads.	Value.
Russia.....	322, 281	\$2, 365, 191	1, 267, 306	\$12, 822, 886
Sweden and Norway.....	610, 794	3, 958, 386	1, 850, 512	18, 861, 400
Germany.....	206, 202	2, 460, 531		
United States.....	136, 139	2, 771, 300	301, 395	3, 991, 680
British North America.....			983, 479	10, 726, 573
Other countries.....			92, 509	2, 332, 020

* A load equals 50 cubic feet of squared timber; 40 cubic feet of unhewn timber; 600 superficial feet of inch planking.

The following statement shows the amount and value of hewn wood and timber imported during the first eleven months of the years given:

Year.	Loads.	Value.
1891.....	295, 290	\$4, 000, 038
1892.....	393, 780	5, 308, 426
1893.....	301, 395	3, 991, 683

Our principal competitors in hewn timber are Sweden and Norway, Russia, Germany, and British North America, in the order named; and in manufactured lumber, Sweden and Norway, Russia and British North America, in the order named.

It will be noticed that 1893 falls below both 1891 and 1892, perceptibly 1892, in value of the imports from the United States.

The timber and lumber from Russia is principally white and red fir. It is used for flooring ceiling, and sheathing, and is considered inferior to American pine.

The timber from Germany is mostly fir also, but none of it comes to the west coast of Scotland.

The timber and lumber from Sweden and Norway are also fir, of much the same character and quality as that from Russia.

As far as this part of Scotland is concerned, our chief competitor is British North America. The supply from Canada and the British possessions consists of yellow and red pine, oak, elm, ash, and birch. It is shipped in the log, and also in deals, battens, and boards.

I find from the published statements of some of the principal lumber-dealers that the import of lumber into the Clyde from British North America for the following years was as follows:

Kinds.	1891.	1892.	1893.
Quebec:			
Yellow pine.....logs	20, 723	31, 022	14, 908
Red pine.....do.	2, 086	1, 756	1, 909
Oak.....do.	3, 573	4, 578	21, 02
Elm.....do.	3, 243	3, 627	1, 899
Ash.....do.	1, 456	2, 565	2, 113
Birch.....do.	5, 832	10, 917	9, 107
Deals and battens of all sorts.....pieces	1, 247, 520	1, 874, 801	1, 822, 774
Staves.....do.	32, 551	4, 810	2, 367

This table includes all the lumber shipped from Canadian ports, and therefore all lumber produced in the United States, but shipped at Canadian ports. How much, if any, there is of such lumber can not be ascertained here.

There has been a great falling off in Quebec staves. The importation from the United States was 999,348 pieces in 1892, and 817,785 pieces in 1893.

Staves from the United States have practically taken the place of the Quebec article. Large quantities of staves are, however, brought into the Clyde coastwise of which no account is kept.

The imports into the Clyde in 1893, as compared with 1892, show the following percentage decrease: Wany and square yellow pine logs, 50; oak logs, 50, although the imports from the United States show an increase; elm and birch, 15 each; sawn pitch pine, 25; ash, which comes mostly from the United States, shows a slight decrease; canary whitewood and poplar, 1,059 logs in 1893, a decrease of 118 logs.

Walnut, which comes entirely from the United States, shows an increase of 33 per cent over 1892, but the wood was of an inferior quality. Maple, which was almost entirely from the United States, shows 330 logs for 1893, an increase of 26 logs.

The imports of pitch pine for the last three years were as follows:

Year.	Hewn logs.	Sawn logs.	Pieces deals.
1891.....	2, 390	38, 310	60, 655
1892.....	2, 457	77, 518	57, 920
1893.....	1, 909	56, 717	23, 956

It has been impossible to get any figures as to the quantity of lumber imported from the United States into the Clyde, except in the few instances which I have given, but no doubt the import in 1893 was

smaller than that of 1892. The following table shows the stocks of timber on hand in the Clyde ports for several years.

Comparative statement of stocks of timber, etc., on hand in the Clyde ports, from Greenock to Glasgow, inclusive, from 1889 to 1893.

	1889.	1890.	1891.	1892.	1893.
Quebec:					
Wany board wood.....cubic feet..	658,043	692,691	585,107	853,265	674,957
Square yellow pine.....do.....	783,569	452,673	263,679	496,067	351,171
Red pine.....do.....	186,409	133,249	88,286	52,153	77,751
Oak logs.....do.....	378,836	289,658	217,087	284,326	242,252
Elm.....do.....	123,776	78,130	87,231	124,688	67,350
Ash.....do.....	92,658	24,362	26,912	28,724	40,585
Hickory.....do.....	1,632		8,866	4,857	5,629
Maple.....do.....	13,176	15,845	13,676	15,216	15,485
Pine deals:					
First quality.....do.....	468,803	163,486	155,320	293,571	311,417
Second quality.....do.....	160,560	89,646	27,892	104,510	109,417
Third quality.....do.....	411,878	182,972	197,691	212,334	457,285
Fourth quality.....do.....	421,028	449,105	226,937	267,329	139,183
Spruce deals.....do.....	171,075	423,239	35,961	313,849	188,103
Red pine deals.....do.....	67,563	187,866	52,745	131,768	120,115
St. John and lower port:					
Spruce deals.....do.....	230,307	151,045	249,026	177,568	328,677
Pine deals.....do.....	204,693	121,897	251,893	173,572	135,324
Birch logs.....do.....	73,225	83,752	46,900	106,748	85,166
Walnut logs.....do.....	22,165	1,789	37,686	18,503	32,085
Whitewood logs.....do.....	7,701	130	30,004	10,271	11,680
Greenheart.....do.....	19,745	2,302	16,637	62,302	78,041
Teak logs.....do.....	769,803	822,447	492,601	711,722	564,516
Teak planks.....do.....	26,937	28,442	11,429	15,370	38,001
Pitch pine:					
Hewn.....do.....	275,867	440,001	228,167	294,400	189,771
Sawn.....do.....	964,722	858,691	272,126	911,400	739,545
Planks.....do.....	15,794	26,006	15,297	74,121	17,880
Oak planks.....do.....	64,731	29,501	25,134	83,262	33,437
Kauri pine, logs and planks.....do.....	17,651	174,999	141,653	90,315	93,923
Mahogany.....logs.....	50	534	380	480	674
Staves:					
Pipe.....milles.....	14	14	4	14	8
Punchoon.....do.....	43	47	4	37	18

PRICES.

Wany board wood:	Per cubic foot.	
21-inch (average long lengths)	\$0.62	
20-inch (average long lengths)	\$0.58 to .60	
18 and 19 inch (average long lengths).....	.56 .58	
Short timber:		
Prime, 20 and 21 inch, average.....	.56	.58
First-class, 19 and 20 inch, average .....	.51	.54
Second quality, 18 to 20 inch, average .....	.28	.36
White pine:		
Prime deck planks, 50 to 55 feet, average.....	.48	.52
Good, fair average, 35 to 50 feet, average .....	.30	.36
Fair average, 35 to 45 feet, average .....	.23	.27
Square board wood, 35 to 40 feet, average .....	.34	.36
Red pine, 40 feet, average.....	.36	.39
Oak:		
Prime quality, 65 to 70 feet, average .....	.66	.75
Second quality, 65 to 70 feet, average .....	.42	.48
Plank .....	.46	.52
Elm, 45 to 60 feet, average .....	.42	.46
Birch, 18-inch, average.....	.36	.46
Walnut lumber .....	.60	.85
Logs, 21-inch, average, prime		1.60

Ash:		Per cubic foot.	
14 to 15 inch, average		\$0.42 to \$10.48	
17-inch average .....			.54
Canary, whitewood, or poplar, 14 to 15 inches .....		.40	.48
Maple .....			.36
Pitch pine:			
Hewn, 90 to 100 feet, average .....		.26	.30
Poor quality, 65 to 70 feet, average .....		.21	.24
Sawn:			
40 feet, average .....			.25
35 feet, average .....			.24
30 feet, average .....			.23
Deals .....		.18	.24
Staves:		Per 1,200 pieces.	
Heavy hogshead, 1 inch, average		\$126.52	
Prime hogshead, 1 inch, average		109.49	
Barrel, 1 inch, average		65.69	
4½ feet pipe, 1 inch average, (good quality)		180.00	
Deals, first quality:		* St. Petersburg standard.	
Broad		\$97.00 to \$134.00	
11-inch		97.00	117.00
Nondimensions		53.00	68.00
Ends		80.29	94.58
Deals, second quality:			
Broad		80.29	88.80
11-inch		73.59	80.29
Nondimensions		53.53	68.13
Ends		50.18	56.73
Deals, third quality:			
11-inch		45.00	48.69
Nondimensions		31.62	40.14
Ends		34.00	40.14
Deals, fourth quality:			
Broad		36.79	40.14
11-inch		33.44	36.79
Nondimensions		30.10	32.84
Ends		26.76	30.10
Red-pine deals:			
Fine		40.14	45.00
Ordinary		30.10	40.14
Spruce deals:			
Regulars		30.10	36.79
Nondimensions		26.76	33.44

CLIMATE.

Glasgow is situated as to latitude in 56° north. The climate of this city and the west coast of Scotland is decidedly a moist one. The rainfall is large, and a week without rain or Scotch mist is an exception. It is cooler in summer and warmer in winter than New York. There is but little snow except in the mountains, and many shrubs thrive here out of doors that would be winterkilled in New York City.

* Hundred, or 165 cubic feet.

There is a great deal of fog both in summer and winter, and a perceptible dampness most of the time.

GENERAL BUILDING.

General building of stores and dwellings for the last year has been up to the average. The city is growing rapidly, and many new buildings are in process of erection.

One of the great industries of Glasgow and vicinity is shipbuilding. This industry has been depressed for the last few years, and for the last year the depression has increased. It is stated by a careful compiler that the outlook for building on the Clyde is about the same for 1894 as it was in the beginning of the season for 1893.

With the contracts lately secured and the vessels now on the stocks the tonnage on hand is estimated at 188,000, compared with 208,000 January 1, 1893, 274,000 January 1, 1892, 297,000 January 1, 1891, and 322,000 January 1, 1890.

There is some railway building going on in western Scotland. An extensive subway for tram cars has been in process of construction under Glasgow for the past two years. The cars will probably be propelled by a stationary motor.

The Caledonian Railway is also building a branch about 20 miles in length, a portion of it running underground beneath this city. A railroad is also under process of construction into the western Highlands from Helensburg, opposite Greenock, to Fort William, about 75 miles in length.

EXTENSION OF LUMBER TRADE.

There is complaint made generally by lumber importers here that exporters from America—the exporters of British possessions as well as the United States—do not send lumber of the quality promised before shipment or up to the standard upon which advances to shippers are made. All shipments should be fully up to the samples shown or promises made as to the quality.

Importers here are afraid to deal with new men or to enlarge their orders beyond old and tried firms with whom they have had dealings and whose honesty they have proved.

American lumber has no serious competitor except some kauri pine from New Zealand, and that not in large quantities, but of very superior quality, so the contest for the Clyde markets lies in reality between British North America and the United States. It may be that the former has a larger supply of first-class pine from which to send its product abroad; and it has also another advantage in that its people are of the same nation as Scotland, for Canada is largely peopled by Scotchmen. A third advantage to Canada is our want of American bottoms in which to convey our lumber.

Still, as far as spool wood, staves, and white pine are concerned, the preference among dealers here is for the timber of the United States, and in oak, maple, ash, and whitewood we now have the lead.

If our dealers will make renewed efforts to enlarge their trade with the western coast of Scotland and will always send a quality of lumber up to the standard of the orders given, I think our trade can be materially increased and very speedily.

Depending upon America for her principal lumber depot from which to draw supplies, Scotland furnishes an inviting field for the enterprise of our lumber exporters, and I am satisfied that, with the proper energy and with honorable dealing, our people ought to hold their own, at least, with Canada in the lumber markets here.

ACKNOWLEDGMENTS.

I am much indebted in the preparation of this report as to prices of lumber and stocks on hand, as well as other items in relation to the lumber trade, to Messrs. Edmiston and Mitchells and Allison Cousland & Co., lumber importers of Glasgow.

ALLEN B. MORSE,
Consul.

GLASGOW, *January 18, 1894.*

HULL.

NATIVE WOODS.

The district within my official observation is not a wooded country, and yields but little timber. The land for the most part, especially in the Holderness division of Yorkshire, lies very low, and is not very favorable to the growth of timber. In and around Hull there is much humidity in the atmosphere, and the whole district is much exposed to the northeast winds.

With regard to native woods, the only timber that seriously competes with America is the English oak, which is considered to be of a hardness and durability superior to any other, unless it be the American live oak, which, however, is never seen here except as a sample.

KIND OF LUMBER USED.

The kind of lumber from the United States which is most in use in England is pitch pine. It is extremely resinous and hard. It is used for piles and in building, but not to any great extent. Pitch pine, although more durable without creosote than Baltic wood, does not take creosote so well. This is attributable to the quantity of resin in pitch pine, which has what local experts call "more nature in it" than Baltic timber.

American oak is largely used in the construction of railway carriages, and is chiefly cut into scantlings.

Oregon timber is chiefly fir. It is very large and, in the opinion of local timber merchants, has valuable properties, but they say it is too expensive for general use in consequence of the high freight.

Fancy woods from the United States, such as birch and walnut, are largely used, and there is nothing in England to compete with them.

Canadian yellow-pine timber and deals are largely consumed, but not to the extent of former years. Baltic woods are being greatly substituted for them by reason of their nearness and hardness, and the increased cost during late years of the Canadian pine. Canadian birch, walnut, elm, and oak are used to a considerable extent.

The substitution of iron for wood in shipbuilding has interfered very much with the use of North American shipbuilding woods. This, however, applies almost altogether to Canada, inasmuch as the quantity of American wood for shipbuilding purposes is very small, so small that the leading timber merchant in Hull spoke of it as scarcely worth mentioning.

The use of pitch pine has now become so general that the trade in balk timber with the Baltic has shrunk into comparatively small compass. The import of pitch pine is entirely from the United States, and, as it is now used in building and for a variety of purposes, there is every likelihood of an increased consumption.

IMPORTS OF LUMBER.

The import from the United States is very much larger than formerly, and continually increasing, whilst from Canada it is not so large as it used to be. This latter fact is accounted for by the use of Baltic woods in place of the more expensive Canadian woods. The forests in the northern districts of Canada, which consist almost entirely of pine timber, have been so much thinned that timber has become more valuable as standing trees.

The Baltic, the White Sea, Canada, and the United States are the great sources of supply for the timber market in Hull and the district. The United States are holding their own, displacing the Baltic timber, and the Quebec red pine, which has almost ceased to come. The latter of all other woods is most like the pitch pine.

The woods most commonly used in this district by English timber merchants are ash, oak, and elm. As before stated, in East Yorkshire the country has been almost cleared of wood, and the same remark would apply to North Yorkshire. The chief imports are from the Baltic, and consist of red and white wood. These woods are generally used for building purposes all over England. The imports of American pine and spruce are much larger on the west coast than on the east coast—the latter being small in comparison. As far as pine is concerned, its qualities and uses have been already indicated. Spruce is

imported on the west coast principally because of the great industries, such as the cotton and woollen industries, which require packing cases, etc. On the east coast the country is mainly agricultural and the consumption of timber is chiefly for building purposes, for which the Baltic woods are preferred. The latter are cheaper and said to be more suitable. The Baltic woods come in longer lengths, and for building purposes are considered to be more durable than either pine or spruce. The oak most used is from Sweden and Odessa.

Formerly a quantity of lathwood used to be imported from Quebec and St. John's into Hull, Liverpool, and Bristol, but of late years little or none has come. The only reason given for this is that the Riga and St. Petersburg lathwood is considered to be better.

According to one authority there is very little hard wood used in Hull. In yellow-pine deals the trade is likely to decrease in the local market for the reason that the prices are being considerably advanced on account of the increased consumption in the United States, hence there is a demand for pine deals from Sweden. Pitch pine finds an increasing consumption and is likely to further increase, according to the authority just alluded to, because it is so cheap.

The Hull Chamber of Commerce gives the total imports of timber during the last ten years, as follows:

Year.	Hewn timber.	Deals, battens, etc.	Staves.	Year.	Hewn timber.	Deals, battens, etc.	Staves.
	<i>Loads.*</i>	<i>Loads.</i>	<i>Loads.</i>		<i>Loads.</i>	<i>Loads.</i>	<i>Loads.</i>
1884.....	92, 087	320, 815	1, 319	1889.....	159, 863	452, 650	3, 312
1885.....	93, 215	367, 447	1, 879	1890.....	162, 681	383, 135	1, 595
1886.....	101, 912	325, 432	3, 221	1891.....	165, 107	371, 607	1, 595
1887.....	119, 565	351, 892	5, 696	1892.....	174, 045	412, 269	1, 605
1888.....	124, 045	388, 321	2, 557	1893.....	107, 862	407, 758	2, 680

*A load equals 50 cubic feet of square timber; 40 cubic feet of unhewn timber; 600 superficial feet of wide planking.

The imports of deals and timber have shown a marked and steady increase except in the year 1893, when, from several unfavorable conditions, the trade received a severe check. No sooner had the Baltic trade opened than the dockers, timber men, and deal carriers struck work at the instance of the Dockers' Union. This strike (a report upon which I transmitted to the Department of State*) lasted some seven weeks, during which time a large proportion of the seamen refused to sign on. The dockers' strike was followed by an extensive strike among the coal miners, which paralyzed once more the whole trade of the Humber ports. The timber trade suffered in common with all the other trades of the port with the result that there was, during the year, a total reduction of 66,000 loads of hewn timber as compared with 1892, and sawed timber deals, etc., fell very considerably from the same causes. There is, notwithstanding, every reason to believe that the import trade will completely recover in 1894.

* Published in Consular Reports for November, 1893, No. 158, p. 368.

GENERAL BUILDING.

Concerning building operations in Hull and the consequent consumption of wood used in this connection, it would appear that, taking an average, there are 800 houses built per annum. In the construction of these Baltic timber is used. An increase of domestic buildings is not anticipated, that is to say, to any extraordinary extent. The town council has formulated a new and more stringent code of building regulations, which will tend to check speculative building and increase the cost of construction. Wooden buildings are likely to become fewer and fewer under the new regulations. Moreover, wood paving, which has been largely used in the streets, now appears to be discouraged by the municipal government, and seemingly there will not be much extension in this direction.

Since the construction of the Hull and Barnsley Railway, which was opened in 1884 or 1885, there has been no railway enterprise of any moment, nor is there any probability of new undertakings or extensions for some time to come. The acquisition of the dock estate by the North-eastern Railway will result in the immediate renovation of much plant, which must involve considerable orders for wood. At the same time, with regard to warehouses on the estate, there is ample accommodation for present requirements.

In shipbuilding, wood becomes less and less in demand. Iron is almost wholly used except as regards fittings. The fishing fleet of the port, which aggregates over 400 vessels of different sizes, consists almost entirely of steam trawlers constructed of iron. The result is that very few wooden craft are built. Even the small river and dock vessels, called lighters and keels, are being built of iron. The tendency is wholly in the direction of iron and steel for shipbuilding purposes.

Having regard to the distance of the American ports, the difference in the rates of freight, and the fact that in the lumber trade with the north of Europe steamers are becoming increasingly employed, it is difficult to suggest any means of stimulating the development of imports from the United States. It is purely a question of competition which can only be determined by the prices which may rule for the time being. As before mentioned, there will in all probability be a demand and preference for the fancy woods from the United States.

EXTENSION OF LUMBER TRADE.

The two great staple trades of Hull are the seed-crushing and timber trades, and the port has hitherto enjoyed preeminence in both, so far as the northeast coast of England is concerned. Hartlepool has for some years been a keen rival, and Hull merchants have been much aggrieved by the preferential charges of the Northeastern Railway Company in favor of Hartlepool. This company, however, has acquired by purchase the docks owned by the Hull Dock Company, so that the

whole of the water acreage of the port is vested in the railway proprietors, with the exception of the Alexandria dock, which is the property of the Hull and Barnsley Railway Company. Under the altered circumstances, and seeing that the Northeastern Company has now such a vast interest in Hull, it is anticipated that, so far as local facilities for developing the timber trade go, the dock and railway owners will do all they can to promote an industry which forms such a great and integral part of the commercial life of Hull. On the score, therefore, of dock accommodation, shipping facilities, and railway charges it may be taken as a fact that there is no prospective discouragement of the timber trade. It is thought by some authorities, and those of the very highest standing, that the Manchester ship canal will eventually rob Hull of no inconsiderable share of its timber trade with the West Riding of Yorkshire and the midland counties. The diversion of traffic would affect in a corresponding measure the Humber ports, Grimsby and Goole, although the latter port is not a great timber-importing place. It is, however, impossible at present to say with any degree of confidence what influence the canal may have upon the timber trade. Much, of course, will depend upon the action of the local railway companies, and the purchase of the Hull docks would suggest that the Northeastern, which is a very powerful company, will adapt itself to the altering needs of the port.

BYRON G. DANIELS,
Consul.

HULL, *January 23, 1894.*

LEEDS.

NATIVE WOODS AND KINDS OF LUMBER USED.

The native woods are ash, elm, poplar, larch, beech, sycamore, and oak.

The kinds of foreign lumber preferred, are Baltic red and white wood, and Canadian pine and oak.

IMPORTS AND PRICES.

I can not give any estimate of the imports into this district. Large quantities come from Russia, Finland, Sweden, and Canada.

Woods are sold by the standard, which is 165 cubic feet, sawed into planks. Baltic white wood will vary from \$30 to \$50 per standard, according to size and quality; red wood, from \$37.50 to \$82.50, according to size and quality; and Canadian pine, from \$45 to \$125. Quebec oak, about 75 cents per cubic foot in the log; pine, about 50 to 60 cents per cubic foot in the log. Baltic lumber is principally sawed.

GENERAL BUILDING.

There is only the ordinary building usual in an English city, all of brick or stone. Wood is used only for interiors; hence much less lumber is required than in countries where wooden or frame houses are common. In general building Baltic wood is mostly used and a great deal of the very cheapest of it in the poorer houses. There is no railroad-building going on in this district, and, as this is an interior point, of course no shipbuilding, though there are a few canal boats built here.

EXTENSION OF LUMBER TRADE.

I should say the best way to increase trade with the United States would be for the mill owners and lumber dealers to send a full line of samples with the lowest prices to the lumber merchants of this country. There is an impression here that the American oaks are not of first-class quality, and very little is known of the long-leaf or yellow pine of the southern part of the United States, the Norway pitch pine being in common use and near at hand to the ports on the east coast of England and Scotland, through which ports it is distributed to all interior points.

NORFLEET HARRIS,
Consul.

LEEDS, *March 7, 1894.*

LIVERPOOL.

NATIVE WOODS.

The native woods used in this district are very numerous, but very few come into competition with woods from other countries. The chief native woods are oak, ash, sycamore, elm, birch, hickory, and fir.

KINDS OF LUMBER USED.

The most extensively used are oak and fir, and they are also the most valuable woods; the former are used for railway carriages, building, etc.

IMPORTS OF LUMBER.

The following table, calculated at the end of the import seasons of 1891, 1892, and 1893, shows the quantities and descriptions of lumber imported at this port during the years named, and the countries from which imported, but do not include furniture woods:

TIMBER, DEALS, ETC.

Kinds and countries.	1891.	1892.	1893.
United States:			
Oak.....cubic feet..		273, 947	374, 441
Oak planks.....do..	1, 768, 000	1, 265, 000	1, 276, 000
Staves.....standards..	2, 506	3, 108	3, 182
Pitch pine.....cubic feet..	3, 885, 000	4, 920, 000	3, 092, 000
Oregon pine (logs and planks).....pieces	82, 000	61, 000	114, 000
Californian redwood.....cubic feet..		150, 000	183, 000
Walnut.....do..	238, 000	300, 000	311, 000
British North America:			
Quebec—			
Yellow pine.....cubic feet..	857, 000	1, 142, 000	1, 173, 000
Wany board.....do..	73, 000	15, 000	4, 000
Oak.....do..		223, 074	286, 940
Elm.....do..	128, 000	110, 000	94, 000
Ash.....do..	21, 000	27, 000	53, 000
Deals, pine, spruce.....standards..	27, 767	32, 005	28, 577
New Brunswick and United States spruce deals.....do..	54, 180	61, 445	60, 031
Birch logs and planks.....cubic feet..	657, 000	1, 085, 000	1, 003, 000
St. John pine.....do..	73, 000	15, 000	4, 000
Other ports—			
Pine.....do..	4, 000	25, 000	1, 000
Red pine.....do..	363, 000	497, 000	661, 000
Baltic:			
Fir timber.....do..	413, 000	210, 000	117, 000
Deals and battens.....standards..	9, 847	8, 501	8, 862
Flooring boards.....do..	15, 684	13, 928	15, 352
Wainscot logs.....pieces	1, 511	3, 109	3, 897
Oak staves.....mille	130	111	257
Lathwood.....fathoms	313	503	234
East India teak.....cubic feet..	163, 000	207, 000	161, 000
Green heart and mora.....do..	196, 000	192, 000	117, 000

FURNITURE WOODS (1893).*

Kinds and country.	Quantity.	Feet.	Average feet per log.
Mahogany: Honduras.			
Belize.....logs..	7, 184	2, 174, 747	302
Do.....curls..	338	27, 772	
Do.....	7, 522	2, 202, 519	
Do.....	5	164	
Total.....	7, 527		
Cedar:			
Belize.....logs..	151	43, 194	
Do.....curls..	5	508	286
Total.....	156	43, 702	
Mahogany: Mexico, etc.			
Laguna.....logs..	1, 719	879, 600	511
Tonala.....do..	874	219, 254	251
Do.....curls..	10	2, 304	
Minatitlan.....logs..	286	100, 399	351
Tlacotalpam.....do..	82	23, 946	292
Tecolutla.....do..	51	17, 579	344
Panama.....logs..	3, 022	1, 243, 082	
Do.....do..	1, 837	551, 054	309
Do.....curls..	52	56, 820	
Do.....		4, 054	
Do.....scantling..	5, 037	1, 855, 010	
Do.....	226	12, 417	
East Indian.....logs..	5, 263	1, 867, 427	
Laguna.....do..	29	19, 353	667
Panama.....do..	414	228, 536	552
Do.....scantling..	287	88, 100	300
Laguna.....curls..	112	7, 815	
Tecolutla.....logs..	62		
Do.....	96		
Panama.....do..	6, 263	2, 209, 231	
Do.....scantling..	75		189
Do.....	897		189
Total.....	7, 235		

*As given in a printed statement transmitted by the consul.

†Tons.

FURNITURE WOODS (1893)—Continued.

Kinds and country.	Quantity.	Feet.	Average feet per log.
<i>Mexico, etc.—Continued.</i>			
Cedar:			
Laguna.....logs	74	31,354	423
Minatitlan.....do	66	29,266	443
Tecolutla.....do	6	3,312	552
South American.....do	61	6,224	102
Laguna.....do	11	6,065	551
	218	76,221	
South American.....do	67	*604	
Do.....do	542		
Total.....	827		
<i>Cuba.</i>			
Mahogany:			
Santa Cruz.....logs	633	51,420	81
Do.....curls	29	964	
Nuevitas.....logs	884	78,603	89
Cardenas.....do	360	39,349	109
Santiago.....do	316	48,543	153
Santa Cruz.....do	1,239	*2,474	66
Nuevitas.....do	1,753	142,026	81
Cardenas.....do	67	9,057	135
Total.....	5,281	452,436	
Cedar:			
Santa Cruz.....logs	1,089	76,477	70
Cardenas.....do	100	19,218	192
Santiago.....do	41	5,656	138
Santa Cruz.....do	1,003	76,200	76
Nuevitas.....do	276	21,600	78
Total.....	2,509	199,151	
<i>San Domingo.</i>			
Mahogany:			
City St. Domingo.....logs	1,939	185,714	95
Do.....curls	1,111	10,180	
Porto Plata.....logs	979	196,053	200
Do.....do	476	36,944	77
Do.....curls	900	10,019	
City St. Domingo.....logs	232	13,019	56
Do.....curls	50	813	
	5,687	452,742	
City St. Domingo (round).....logs	148	*21	
Do.....do	40	*9	
Do.....do	391	*20	
Total.....	6,266		
<i>Africa.</i>			
Mahogany:			
Axim.....logs	4,423	1,920,908	434
Assinee.....do	3,732	1,662,442	448
Grand Bassam.....do	1,212	415,407	343
Chama.....do	515	164,155	318
Princes.....do	317	84,911	267
Sundry ports.....do	1,136	437,552	385
	11,335	3,685,435	
Chiefly from Axim and Assinee.....do	543	241,222	
	11,878	4,926,657	414
From Axim, etc.....do	202		
	12,080		
Sundry ports (round).....do	121	*143	
Total.....	12,201		
Cedar:			
Sundry ports.....do	15	6,799	453
Do.....do	1	*24	
Total.....	16		

* Tons.

PRICES.

Statement showing the prices of lumber and timber at Liverpool in 1893 and 1894.

Description.	February 3, 1893.		February 3, 1894.		
Canadian.					
Yellow pine timber:					
Quebec, square wood.....cubic feet.	\$0.30 to	\$0.60	\$0.30 to	\$0.60	
Wany board, square wood.....do.	.48	.64	.48	.64	
St. John, 18-inch average.....do.	.36	.52	.36	.52	
Dalhousie, etc.....do.	.24	.32	.24	.32	
Red pine.....do.	.28	.36	.28	.36	
Oak:					
First quality.....do.	.60	.68	.66	.73	
Second quality.....do.	.36	.52	.36	.52	
Elm.....do.	.48	.52	.44	.48	
Ash.....do.	.36	.48	.36	.44	
Whitewood.....do.	.36	.48	.36	.48	
Birch:					
St. John.....do.	.30	.36	.28	.32	
Quebec.....do.	.32	.44	.32	.44	
Nova Scotia, etc.....do.	.24	.30	.24	.30	
Birch planks.....do.	.18	.24	.18	.20	
Masts, calliper measure:					
Red.....do.	.42	.48	.42	.48	
Yellow.....do.	.42	.54	.42	.54	
Spars, spruce.....do.	.20	.24	.20	.24	
Deals, Quebec, yellow:					
First quality.....per standard.	97.33	121.66	97.33	121.66	
Second quality.....do.	72.99	80.37	72.99	80.37	
Third quality.....do.	41.36	43.79	41.36	43.79	
Deals, spruce:					
St. John, Bangor, etc.....do.	28.58	29.19	28.58	29.79	
Nova Scotia, etc.....do.	25.54	27.97	26.15	28.56	
Boards, spruce, etc.....do.	24.33	25.54	24.93	26.14	
Staves, Quebec standard:					
First quality.....per standard mille.	291.99	316.32	291.99	316.32	
Second quality.....do.	170.32	218.99	170.32	218.99	
Staves, W. O. puncheon:					
First quality.....per mille.	97.33	107.06	97.33	107.06	
Second quality.....do.	68.13	75.42	68.13	75.42	
Oars, ash.....per running foot.	.06	.08	.06	.08	
Handspikes:					
Hickory, dressed.....dozen.	3.03	3.48	3.04	4.38	
Rough, birch.....do.		.73		.73	
Lathwood.....per fathom 4 feet.	12.16	17.03	12.16	17.03	
American.					
Pitch pine:					
Hewn.....per cubic foot.	.26	.32	.24	.30	
Sawn.....do.	.24	.28	.24	.28	
Planks.....do.	.20	.24	.20	.24	
Oak logs.....do.	.42	.60	.30	.48	
Oak planks.....do.	.36	.50	.36	.48	
Teakwood, East India.....per load calliper.	48.66	51.09	46.22	51.09	
Greenheart.....do.	29.19	34.06	31.62	34.06	
Black mora.....do.	21.89	24.33	21.89	24.33	
Staves:					
New Orleans—					
Wine pipe, extra heavy.....per mille.	243.32	279.82	243.32	279.82	
Hogshead, extra heavy.....do.	145.99	170.32	145.99	170.32	
Barrel, extra heavy.....do.	97.33	107.06	97.23	107.06	
Boston, New York, and Philadelphia—					
Extra heavy pipe.....do.	145.99	170.32	145.99	170.32	
Heavy pipe.....do.	131.39	145.99	131.39	145.99	
Light pipe.....do.	111.92	121.66	111.92	121.66	
W. O. W. I., hogshead.....do.	102.19	111.92	102.19	111.92	
Second quality, hogshead.....do.	72.99	77.86	72.99	77.86	
Culls.....do.	63.26	68.13	63.26	68.13	
Extra heavy barrels.....do.	97.33	107.06	97.33	107.06	
Light barrels.....do.	58.39	68.13	58.39	68.13	
Culls.....do.	34.06	38.93	34.06	38.93	
Baltimore, Norfolk, Charleston—					
Wine pipe.....do.	72.99	121.66	72.99	121.66	
Hogshead.....do.	38.93	58.39	38.93	58.39	
Barrel.....do.	29.19	38.93	29.19	38.93	
Furniture and fancy woods.					
Mahogany:					
Santo Domingo.....per foot of 1 inch.	.11	.16	.07	.14	
Do.....do.	.11	.16	.09	.14	
Cuba.....do.	.10	.14	.08	.12	
Mexican and Tabasco.....do.	.07	.15	.07	.13	
African and Panama.....do.	.05	.12	.05	.12	

Statement showing the prices of lumber and timber at Liverpool in 1893 and 1894—Cont'd.

Description.	February 3, 1893.		February 3, 1894.	
<i>Furniture and fancy woods—Continued.</i>				
Cedar: Havana, etc..... per foot of 1 inch..	\$0.08	to \$0.09	\$0.07	to \$0.10
Pencil cedar..... per cubic foot..	.48	.73	.48	.73
Satinwood:				
Santo Domingo..... per foot of 1 inch..	.12	.18	.08	.14
Bahama, etc..... per ton..	19.46	20.19	19.46	20.19
Walnut:				
Italian, etc..... per foot of 1 inch..	.06	.10	.06	.10
Circassian burrs..... per ton..	24.33	97.33	24.33	97.33
American burrs..... per cubic foot..	.60	1.21	.60	1.21
Sequoia (California redwood)..... do..	.52	.56	.44	.48
Rosewood: Bahia..... per ton..	53.53	68.13	29.19	58.39
Zebra wood..... do..	21.89	26.76	21.89	26.76
Lignum-vitæ..... do..	19.46	43.79	19.46	43.79
Lancewood spars:				
Large sizes, fresh..... each..	2.43	3.77	1.82	2.43
Medium and small sizes, fresh..... do..	1.21	1.82	.97	1.46
<i>Miscellaneous.</i>				
Timber:				
Riga, red..... per cubic foot..	.32	.36	.32	.36
Dantzic:				
Crown..... do..	.36	.44	.36	.44
Middling and common..... do..	.30	.36	.30	.36
Memel:				
Crown..... do..	.40	.44	.40	.44
Middling and common..... do..	.30	.36	.30	.36
Stettin..... do..	.32	.38	.32	.38
Swedish..... do..	.24	.30	.24	.30
Dantzic and Riga whitewood..... do..	.24	.26	.24	.26
Norway mining timber..... do..	.20	.22	.20	.22
Oak: Stettin, Dantzic, etc..... do..	.44	.48	.44	.48
Wainscot logs:				
Riga and Memel—				
Crown..... do..	.97	.03	.97	1.07
Brack..... do..	.60	.73	.60	.73
Austrian..... do..	.85	.97	.85	.97
Spars, Norwegian..... do..	.18	.28	.18	.28
Deals, redwood..... do..				
Archangel and Onega, red—				
First quality..... per standard..	80.29	85.16	80.29	85.16
Second quality..... do..	60.82	65.09	60.82	65.09
Third quality..... do..	46.22	51.08	46.22	51.08
St. Petersburg:				
First quality..... do..	65.69	72.99	65.69	72.99
Second quality..... do..	51.08	58.39	51.08	58.39
Wyborg..... do..	41.36	46.22	41.36	46.22
Uleaborg..... do..	41.36	48.66	41.36	48.66
Gefle and Stockholm..... do..	48.66	53.53	48.66	53.53
Gothenberg..... do..	46.22	51.08	46.22	51.08
Whitewood—				
Crown..... do..	34.06	38.93	35.06	38.93
Seconds..... do..	29.19	31.62	29.19	31.12
Palings:				
Spruce,				
5 feet by 1 inch..... per 1,200 pieces..	19.46	21.89	19.46	21.86
4½ feet by ¾ inch..... do..	13.38	15.60	13.38	15.60
Baltic..... per standard..	23.11	27.98	23.11	27.96
Laths, sawn..... per mille..	3.04	3.65	3.04	3.65
Boards, whitewood, C. I. F., per standard:				
Flooring, planed—				
First and second quality, mixed..... do..	34.66	35.27	35.27	36.46
Third quality, mixed..... do..	28.58	29.19	31.62	32.84
Red, unplained..... do..	24.33	26.76	24.33	27.37
Lathwood, per fathom, 6 feet wide, 6 feet high:				
Dantzic—				
6 feet long..... do..	27.98	20.19	27.98	20.11
4 feet long..... do..	20.67	21.89	20.67	21.84
St. Petersburg and Rigna—				
8 feet long..... do..	36.49	38.93	36.49	38.03
4 feet long..... do..	18.24	19.46	18.24	19.44
Handspikes, birch..... per dozen..	1.21	1.33	1.21	1.33
Treenails, locust..... per mille of 21 inches..	24.33	31.62	24.33	31.63
Oak staves:				
Dantzic, crown, pipe..... per mille of 1,200 pieces..	900.30	948.96	900.30	948.97
Memel..... do..	900.30	948.96	900.30	948.94
Bosman, barrel..... do..	97.33	121.66	97.33	121.04
Black Sea..... do..	97.33	102.19	97.33	102.11

CLIMATE.

The climate of Liverpool, though-variable, is remarkably mild, compared with that of other places on the same parallel of latitude. The variation in temperature is not very great, railway and river traffic being carried on with little interruption all the year round, and the river is never frozen over in the severest winter. Neither extremes—heat or cold—are experienced, but the atmosphere is moist.

GENERAL BUILDING.

Wooden ship-building at this port has been very light during the year 1893, only 5 steamers, ranging from 5 to 20 tons, having been built, 4 of which were for foreign governments and one for the British Government. There were also 6 wooden barges of 20 tons each, built of pitch pine for the British Government. Some of the launches were of teak and some of pitch pine.

The railway carriage and wagon industry centers in Birmingham, where the principal works are located, and there is practically nothing done in this consular district in carriage or wagon building.

The timber business for the year 1893 was equal to the previous one; but a want of confidence was shown in sympathy with the unsatisfactory general trade of the country. Imports, with few exceptions, were not excessive, the greatest excess being in spruce deals.

AMERICAN WOODS.

Pitch pine.—The aggregate import has shown a considerable falling off during the year 1893, having been 37 per cent below that of the previous year, which was the heaviest on record at this port. The consumption compared favorably with the import, though less than the previous year. Still, stocks held over were rather excessive.

Hewn wood.—The season opened with a heavy stock of this wood, and although there was a large consumption, prices ruled very low, and the present stock, which consists chiefly of ordinary-sized wood, is heavier than for some years.

Sawn timber.—There has been a marked falling off in the import; but the consumption was large—much of it, however, of a forced character; consequently, the stock held over was much smaller than on the previous year, but the trade complain that the stock is still excessive. It is hoped, therefore, that shippers will make an effort to curtail the production; otherwise, dealers here say it is hopeless to expect the market to assume a healthy tone in the near future.

Deals.—These did not meet with very ready sale in this market; in fact, there seems very little demand for them and with few exceptions those imported for stowage purposes are sufficient to meet the demand.

Boards.—Boards of prime quality and cut to special sizes are getting more in favor here, and an increasing business has been done at what are stated to be fairly remunerative prices.

Oak.—The importation of logs has been large, chiefly from New Orleans and Mobile. Some of it was of fine quality, but the bulk is stated to be of medium to common quality, and therefore claimed by the dealers as difficult to sell, with the result that much of it had to be stored in the yard. Where sales were effected, very low prices were obtained. The stock is heavy.

Planks.—The importation of planks was heavy, and consisted largely of "wagon scantling," the business in which has increased very considerably of late years; but the demand has been languid, although the prices for prime quality and good specifications have been fairly maintained. Common quality was difficult to handle, and the prices ruled low. The opinion here is that the manufacture generally has improved; but the people in the trade suggest that more care should be taken in shipping prime parcels free from culls. The present stocks of planks, including a large proportion stored in outside depots, amount to about 400,000 cubic feet, which is considered much too heavy.

Boards.—During the year boards arrived freely. When of good quality and cut on the quarter, they met with fair sales. Other descriptions than this are not wanted.

Wainscot billets.—These have ceased to be imported.

Satinwood.—The import was moderate, chiefly from Mobile and New Orleans. It did not, however, meet with ready sale, and the prices were very low.

Whitewood.—The importations of whitewood were larger than the previous year. Logs and planks of really good quality sold freely at fair prices, but at the close of the year logs declined in value. An increasing business was also done in boards, principally of the best quality, which are most in demand here. Stocks held over are moderate.

Hickory.—Several parcels were brought over, which, when in the round log with the bark on and fresh, commanded what is claimed to be fair prices, viz, from 36 cents to 60 cents per foot.

Ash.—This wood was imported more freely, and found fair sale at from 30 to 48 cents per foot. Only the fresh wood of good size and color is in demand here at all.

Cherry wood.—The importation has been very limited, and realized about 66 cents per foot. Consumers like this wood, and if regular supplies could be depended on, it would find greater favor with them.

Staves.—The total import of all descriptions from the United States has been 3,182 mille, against 3,169 mille during 1892. There has been a demand throughout the year for New Orleans wine pipe, hogshead, and barrelstaves, and stocks on hand are more moderate. The W. O. W. I. were freely imported from Boston, New York, and Philadelphia, especially towards the close of the year, the consequence being that stocks have

accumulated to a considerable extent. There is poor demand, and prices have fallen, with a tendency to further decline.

Walnut.—There was a very heavy import of walnut, but much of it was of small to medium sizes, and stated to be of poor quality, and consequently brought low prices. Good-sized wood of the best quality was in active demand, and commanded throughout the year full price.

Satin walnut.—This was imported in moderate quantities from New Orleans and Mobile of good size and quality, and a few parcels of round logs from Newport News of inferior quality. The sales, however, were poor and prices low.

Mahogany.—Of the furniture woods imported into this port mahogany is by far the most extensive. The greatest quantity comes from Africa, as shown by table heretofore quoted. Complaints are made, however, that shipments have been sent along quite regardless of the wants of the trade. The rapidity with which this business has increased is simply marvelous; hence my reason for referring to it here. In the year 1890 only 257,000 feet (superficial) were imported; this year there were not less than 4,984,000 feet came forward, which is nearly equal to the entire import from all other countries. Next to Africa comes Honduras as a mahogany-shipping country, the import therefrom being the heaviest for several years and nearly double that of last year, but it all went into consumption and left the market bare. Good quality, straight and sizeable wood, always meets with ready sale, and the prices were fairly maintained.

JAMES E. NEAL,
Consul.

LIVERPOOL, *March 6, 1894.*

NEWCASTLE-ON-TYNE.

NATIVE WOOD.

The native woods of this region are of the usual hardy growth of this latitude, and are principally oak, ash, elm, pine, willow, poplar, sycamore, etc.; but little native lumber is made in England.

KINDS OF LUMBER USED.

The lumber principally used here is pitch pine, white and red fir, oak, walnut, and deals.

IMPORTS OF LUMBER.

The chief importation of lumber into Great Britain is from Norway and Sweden and ports on the Baltic, and for this part of England, the east coast, notably the Tyne ports, Sunderland, Hartlepool, Hull, and

Grimsby. The quantity of lumber imported into the Tyne for the year ending December 31, 1893, was as follows:

Kinds.	Germany.	Russia.	Norway and Sweden.	United States of America.	Canada.
	<i>Loads.</i>	<i>Loads.</i>	<i>Loads.</i>	<i>Loads.</i>	<i>Loads.</i>
Deals (boards)	3, 794	10, 626	44, 228	2, 683	3, 619
Lath wood		1, 566	173		
Sleepers	83	877	17, 510		
Pit props	3, 984	4, 849	54, 155		
Square and other timber	2, 553		12, 474	16, 844	9, 685

NOTE.—A load of lumber is usually 50 cubic feet of squared timber; 40 cubic feet of unhewn timber and 600 superficial feet of inch planking.

PRICES.

The average prices of the sorts mentioned are: Deals and battens, from £5 to £8 8s. per standard of 165 cubic feet, known as St. Petersburg standard; planed boards, about £8 8s. to £10 10s. per standard; square timber, depends on size of log; pine, average sizes, 1s. 6d. per cubic foot up to 2s. 6d. for large size; railway ties, sold by size, about 6s. per 72 running feet.

GENERAL BUILDING.

This consular district is one of the most important shipbuilding districts in the United Kingdom, but the material used is exclusively iron. No important structures of wood are ever erected in England.

EXTENSION OF LUMBER TRADE.

The trade here is a very old-established one, and the dealers are well aware of all the world's sources of supply. The cost to deliver here is the principal question to consider, and in this the sea freight cuts the chief figure. For the class of lumber here mentioned the long Atlantic voyage can not be expected to successfully compete with the shorter one from the adjacent ports of the Baltic.

WM. S. CAMPBELL,
Consul.

NEWCASTLE-ON-TYNE, *February 15, 1894.*

POLYNESIA.

HAWAIIAN ISLANDS.

NATIVE WOODS.

The koa is the only native wood which has any commercial value. This wood is comparatively rare, and is used for furniture and decorative purposes.

KINDS OF LUMBER USED.

The kinds of lumber used here are Puget Sound fir, spruce, and cedar; California redwood, oak, ash, and hickory.

IMPORTS AND DUTY.

All the timber used here is imported from the United States. About 15,000,000 feet are imported annually.

There is no import duty on American lumber. A duty of 10 per cent is exacted on lumber from other countries.

PRICES AND CLIMATE.

Puget-Sound fir sells for from \$18 to \$20; spruce (clear-surfaced), \$37, and cedar, \$80 to \$100 per 1,000 feet. Oak and ash (for carriage work) costs \$160, and hickory \$200 per 1,000.

The climate is mild and pleasant.

GENERAL BUILDING.

There is no shipbuilding in this country; there is, however, a small amount of ship-repairing.

Railroads are built from time to time on the various plantations on the Islands, and are used for conveying the sugar cane from the fields to the mills.

ELLIS MILLS,
Consul-General.

HONOLULU, *April 28, 1894.*

NEW CALEDONIA.

NATIVE WOODS.

The native woods of New Caledonia may be classed as follows:

Ornamental and fruit trees, among which may be included all the palm kind.

The orchidaceæ are numerous in the woods of the colony.

Useful woods for building, furniture, or mechanical purposes are numerous, but being mostly situated in places difficult of access form but a small item in the local industries. The coniferous sorts, which are to a small extent worked, are the kaori (*Dammara moorea*), which is the giant tree of the colony; the *Araucaria cookii*, which give straight but knotty spars from 30 to 40 meters; the *Araucaria Ruleii*, which are found in the southern part of the island, and attain about the same size as the *Araucaria cookii*, the *Storckellia prancheri*, white, rosy-grained, used for joinery work; the *Intzia melibæi* of the Isle of Pines, very good for furniture.

The hard wood kinds, used in ship and house buildings, are numerous; the *Melaleuca glaberrima*, and *Mulaleuca leucodendron* are examples.

The principal hard redwood trees are as follows: The *Pleurocalyptus deplanchei*, good heavy wood of a density of 1.165; the *Spermolepis tannifera*, the *Grevillea gillivragi*; the *Stenocarpus haurifolius*, a beautiful furniture wood; the *Weinmannia parviflora*, denominated white oak—its bark is rich in tannic principles; the *Calophyllum montanum* (tamanon), one of the most useful trees here, is used in cabinet-making.

There are numerous other species, but they are of little importance in a commercial sense.

IMPORTS OF LUMBER.

The lumber preferred is that from the United States—Oregon and Washington, from which the largest quantity of wood employed in this colony is imported, say 2,000 tons yearly.* In 1893, however, there was no direct importation from the United States, as the stock on hand at the end of 1892 was considerable.

New Zealand supplies about 200 tons of kourī annually, and New South Wales about the same quantity of hard wood (blue and red gum).

PRICES AND CLIMATE.

The different sorts of lumber from all countries are sold here at from 90 to 120 francs (\$17.37 to \$23.16) per ton.

The climate of New Caledonia is tropical, but moderate and healthy, resembling the climate of the Hawaiian Islands.

GENERAL BUILDING.

The colony is making fair progress in housebuilding, but very little in shipbuilding. There are no railroads yet.

EXTENSION OF LUMBER TRADE.

The only method left to be tried here for the extension of the trade of this colony with the United States in lumber, as well as in other American goods, is the establishment of an American house of business at

* The ton mentioned in this report is the French cubic meter—35.3 cubic feet.

Noumea. In my opinion there is a fair opening for such a house here, more especially if direct communications with the Pacific States were to be created.

ACKNOWLEDGMENTS.

I am greatly indebted to Mr. A. Jeanneney, who has lived in this colony for several years as a Government officer attached to the transportation department, and one of the most scientific men of New Caledonia, for much of the information contained in this report.

L. LE MESCAM,
Consular Agent.

NOUMEA, *March 15, 1894.*

SAMOA.

KINDS OF LUMBER USED.

There is very little domestic lumber used, there being no mills here, and any that is made is sawn out by hand. The favorite building lumber is Oregon pine and California redwood. New Zealand kauri is preferred for boat building.

IMPORTS AND DUTY.

New Zealand is the only other country besides the United States from which lumber is imported into these islands. The total imports for the year ending June 30, 1893, amounted to 86,000 feet.

The import duty on lumber is 2 per cent ad valorem.

PRICES AND CLIMATE.

Rough lumber sells here for about 4 cents per foot; surfaced lumber from 5 to 7 cents.

The climate of this district is hot and damp. We seldom have three weeks without rain. The dry season, if it can be called so, is from May to October. During the other months storms may be expected, sometimes gales, and occasionally hurricanes.

GENERAL BUILDING.

Considerable building goes on here all the time. There are always one or two houses in course of construction, and repairing is constantly going on. This climate is very severe on buildings. The wood, where near the ground, or exposed to sun and rain, rots in about three years.

No shipbuilding is carried on, but many boats are built every year.

NATIVE WOODS.

The following is a descriptive list of Samoan woods:

Name of tree.	Quality.	Color.	Diameter.	Height.	Use.	Remarks.
			<i>Feet.</i> 3 to 4	<i>Feet.</i> 40 to 60		
Ifai	Soft	Whitish yellow			Firewood	Edible nut (chest-nut).
Ifilelo	Hard	Mahogany	3	60	Furniture and dye	
Ifulu	Medium	Lighter mahogany	3	60	do	
Ifisauga	Hard	Darker mahogany	3	60	do	
Fetau	Hard, curly.	Red, yellow, and white streaks.	2	20	Boat knees veneer and ornamental work.	
Manau	Medium	Light gray	1	30	Furniture and veneer.	
Talio	Hard	Gray	4	80	do	
Laupata	Soft	Reddish	2	20	No use	
Masame	Hard	Reddish brown	3	50 to 60	Furniture	
Tamanu	Medium	Red cedar	3	60	do	
Pau	Hard	Dark pink	3	60	War clubs	Good for carving.
Fau	do	Gray and yellow	3	20 to 30	Knees, stems, and timbers for boats.	
Milo	do	Variegated, dark and light streaks	3	20 to 30	do	Good for ornamental work.
Taunave	Medium	Brown, red, black, and white streaks.	3	20 to 30	do	Makes nose and mouth bleed when working it.
Mamala	do	Blood red	3	50	Furniture	
Tuleilo	Hard	Reddish	3	50	do	
Fuafuta	Soft	White	3	60	Firewood	Splits well.
Masilil	Hard	Yellow	3	80	Boat building	
Paumuli	do	Black	4	80	Gateposts	Does not rot in the ground.
Tava	do	Dark	2 to 3	60	Furniture	
Vi	Soft	Light	3	70	No use	Fruit tree.
Manupau	Hard	Pink	3	60	War clubs	
Asi	do	Red	1	20 to 30	Wharf piles	Bastard sandal-wood.*
Tavae	Medium	Light yellow	3	50	Boat boards	Similar to white cedar.
Mamalava	Soft	White	2	80	Shingles	Similar to white pine.
Mangrove	Hard	Rosewood	1	18	Dye, firewood, and piles.	
Aloalo	do	Light	1	30	Gateposts	
Cocoanut						

W. BLACKLOCK,
Vice-Consul-General.

APIA, April 24, 1893.

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